

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

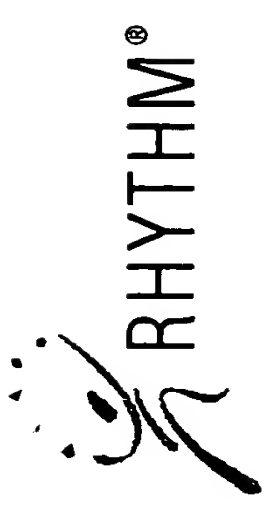
Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

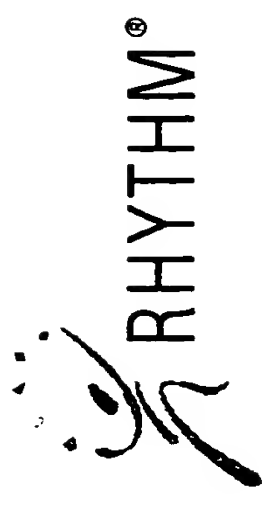
**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**



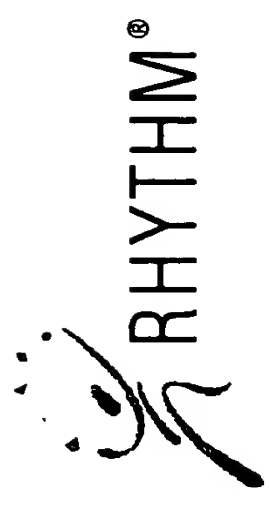
# **Rhythm Global Decision Support Solutions**

**“Driving Global Competitive Business Dominance  
Through Multi-Enterprise Business Optimization”**



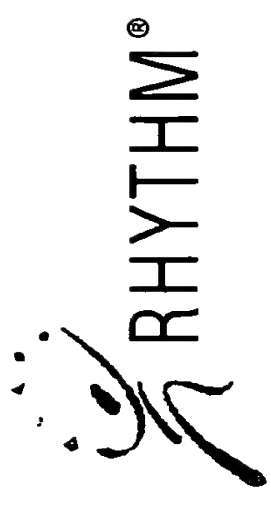
**i2 provides solutions  
that enables people to  
make optimized decisions**

# Rhythm Optimization Definitions



- ▶ **APS Engine:** Individual module which, on a stand alone basis, represents and solves a specific component of an overall business problem
  - Example:** Rhythm Factory Planner solves the manufacturing component of a total supply chain optimization problem
- ▶ **Resolvers:** Algorithms that represent and solve a specific constrained problem within an overall APS module
  - Example:** Rhythm Supply Chain Planner uses heuristic resolvers in the form of business logic rules to generate feasible solutions

# Rhythm Optimization Definitions



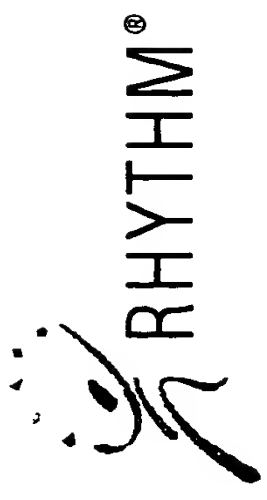
- ▶ **Solutions:** Collection of APS engines which combine to solve a customers business problem

**Example:** Master Planning solution which involves Rhythm Forecast Planner, Rhythm Supply Chain Planner, Rhythm Factory Planner and Rhythm Sales & Operations Planner

- ▶ **Multi-Engine Solutions:** Solutions which involve an interaction among multiple APS engines in order to achieve optimization

**Example:** Rhythm Supply Chain Planner drawing on Rhythm Factory Planner and Venture Freight Optimizer to generate an integrated supply chain optimized solution spanning manufacturing and distribution

# Potential North American Retail Supply Chain Benefits



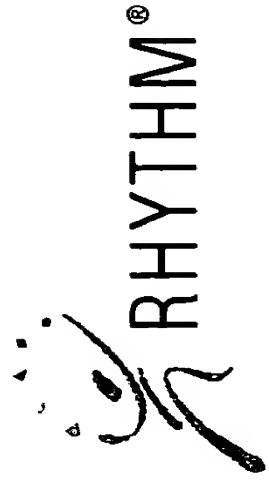
## Current Status

## Potential Benefits

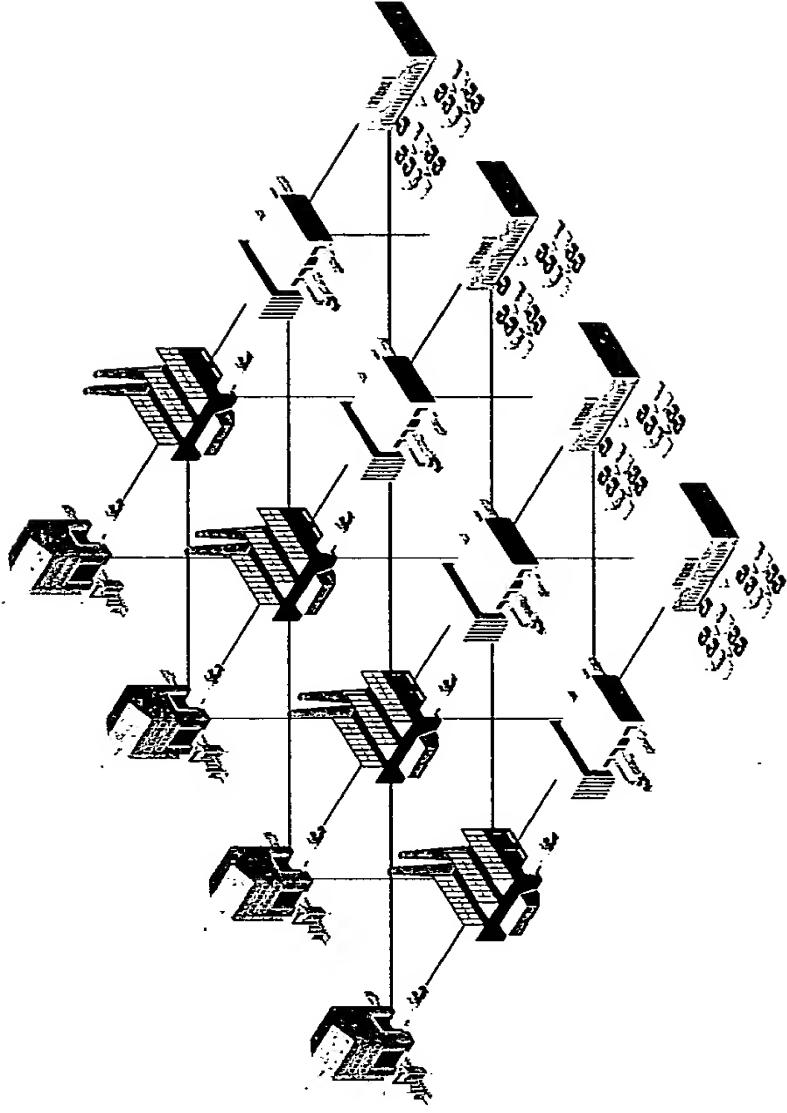
- ▶ **Total Cost:** \$1,200 Billion ▶ **Total Cost Reduction:** 25%  
\$300 Billion/YR
- ▶ **Inventories:** \$800 Billion ▶ **Inventory Reduction:** 50%  
\$400 Billion/YR
- ▶ **Lost Sales:** \$180 Billion ▶ **Increased Revenue:** 10%  
\$120 Billion/YR

*Sources : Benchmarking Partners,  
Voluntary Inter-Enterprise Commerce Standards (VICS)*

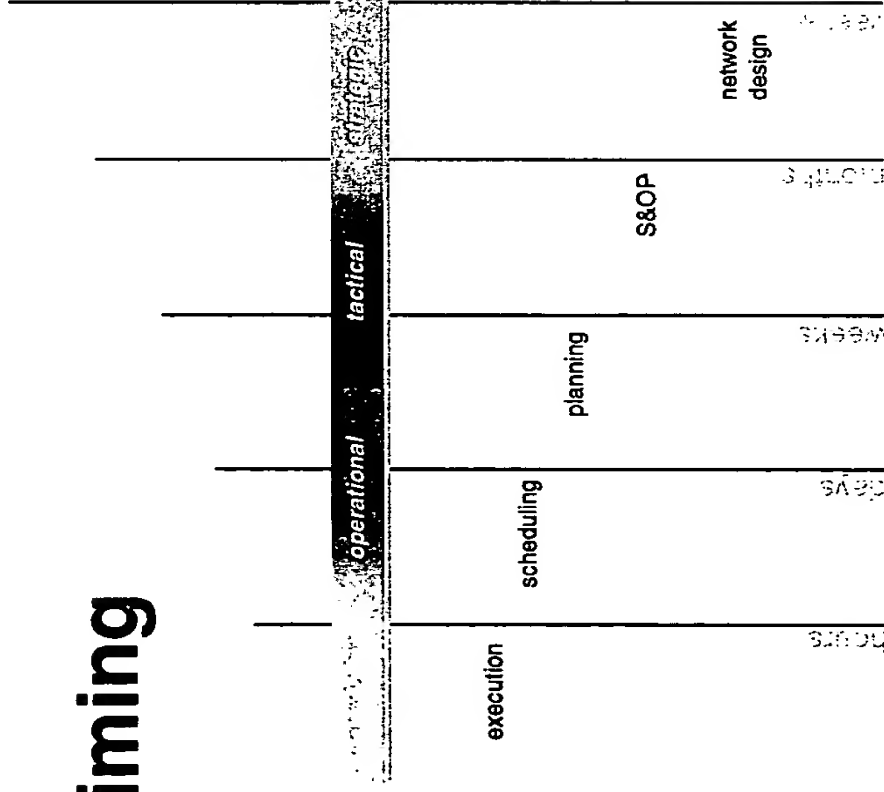
# Optimized Decisions: Business Drivers



## Supply Chain Complexity



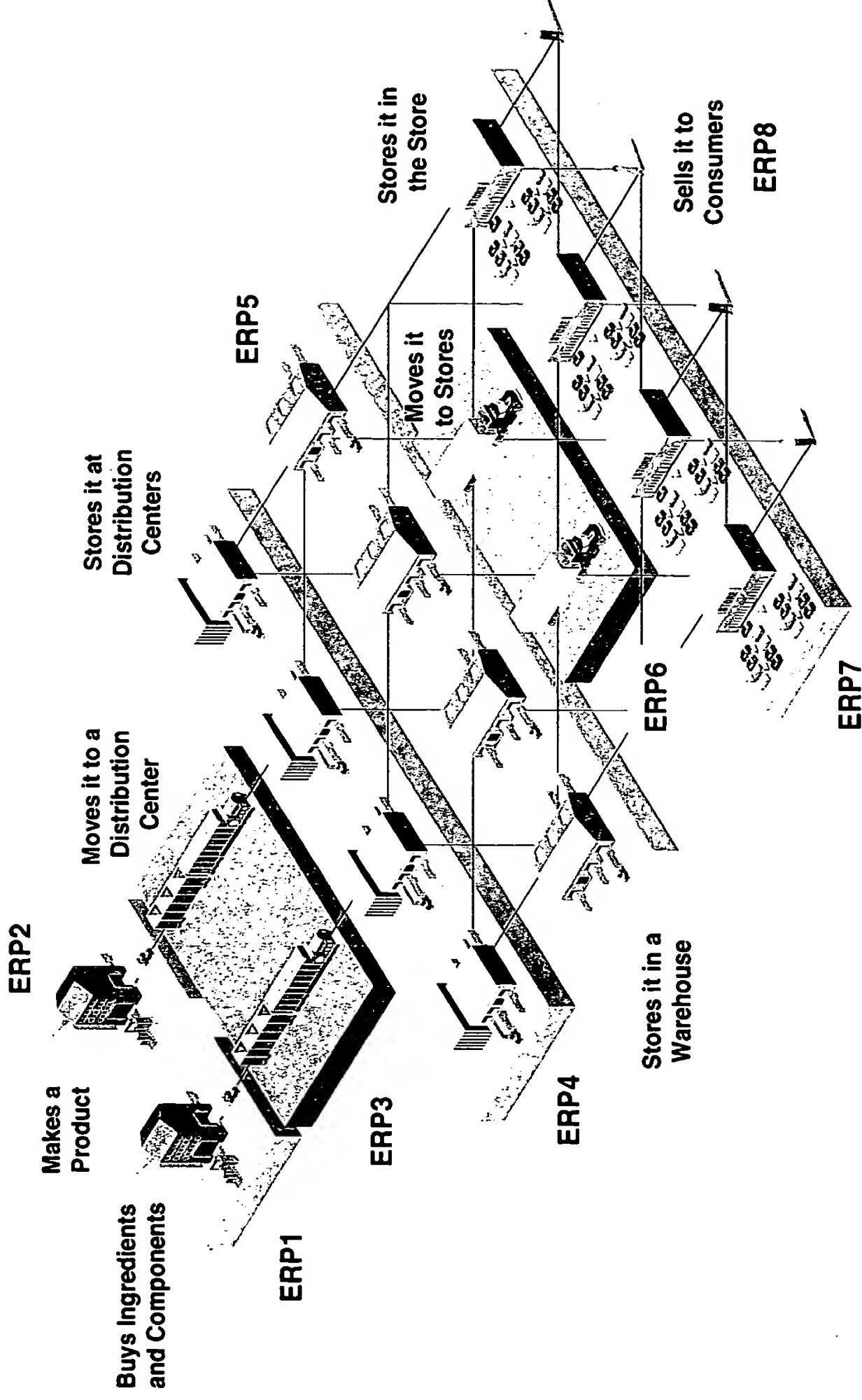
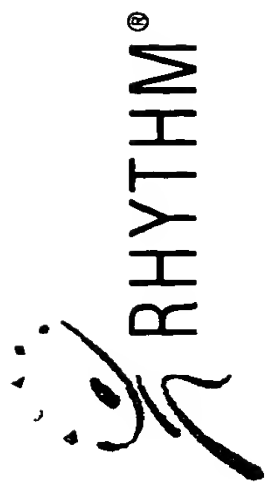
## Timing



The Planning Funnel

# Business Challenge:

## Multi-Enterprise Supply Chain





# The Potential Impact on ROA Increases Dramatically Over Multiple Domains



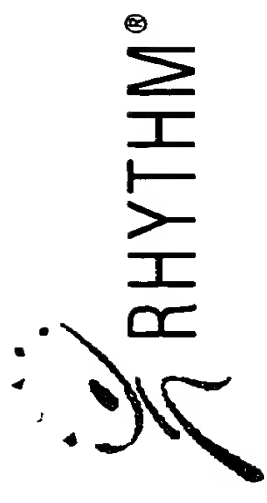
ROA  
Impact



Multi Enterprise      Single Enterprise      Business Unit      Functional Multi Unit      Functional Unit Silo

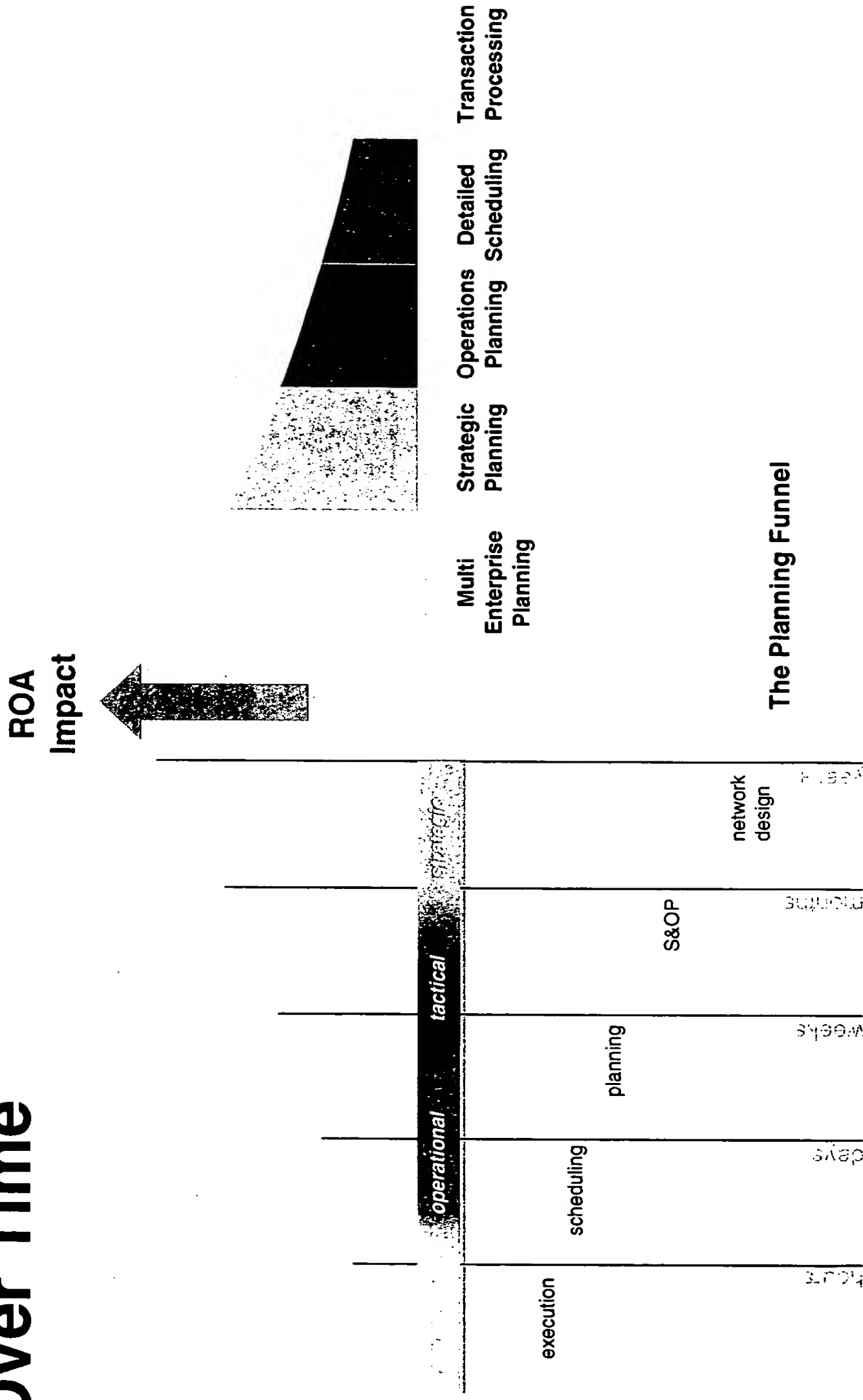
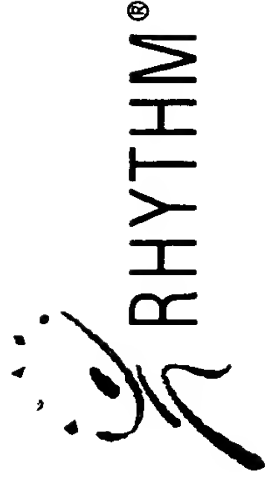
# Business Challenge:

## Multi-Enterprise Supply Chains

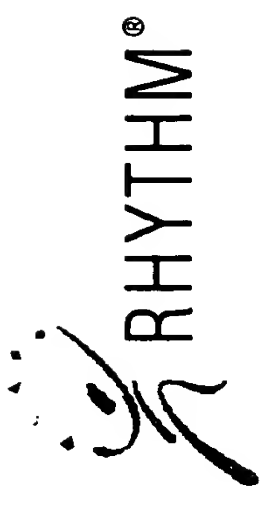


- ▶ **Integrated supply chains** are increasingly being pitted against each other for dominance and survival
- ▶ **Harmonizing multiple control domains:** Functional Silos, Business Units, Enterprises
- ▶ **Solution integration of multiple business processes,** as well as integrating planning, execution, monitoring and control phases
- ▶ **Single face to customer/supplier** across all domains maximizes leverage
- ▶ **Benefits** flow from maximizing customer service and revenues, and minimizing total delivered cost and resources

# The Potential Impact on ROA Increases Dramatically Over Time

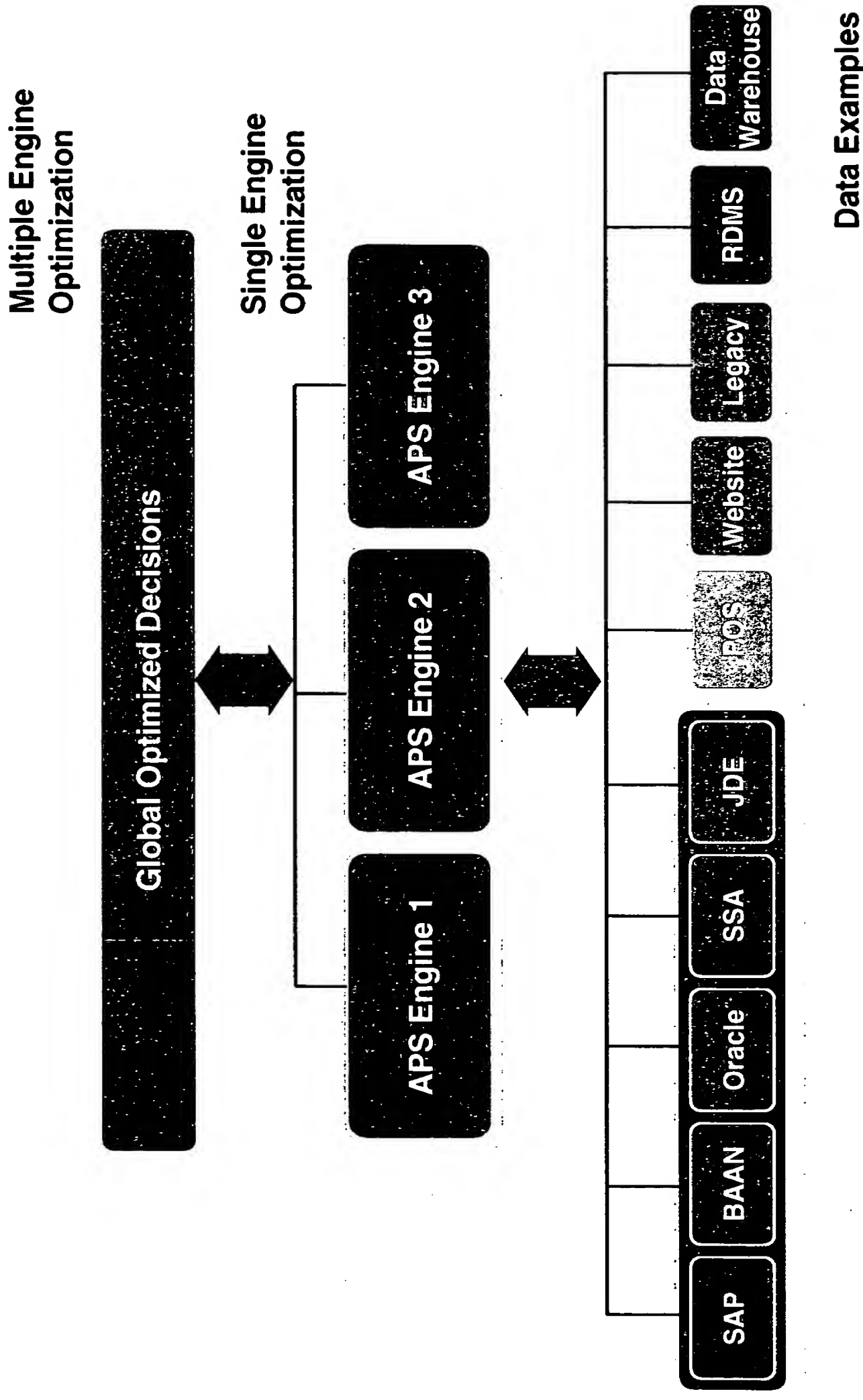


# Business Challenge: Timing of Decisions



- ▶ **Planning Funnel** scope drives ROA impact potential through increasing number of options and degrees of freedom
- ▶ **Advanced Planning and Scheduling (APS)** systems, which can simulate alternatives and recommend solutions, are central to optimal decision making, resource utilization and return on assets
- ▶ **Advanced Early Warning Systems** are critical to providing maximum response time and the best solutions

# Technology Challenge: Diversity

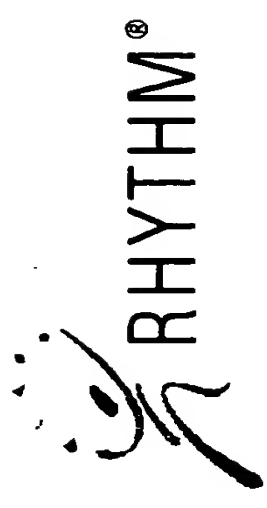


# Technology Challenge : Requirements to Enable Maximum ROA



- ▶ **Optimize across** multiple decision support engines
- ▶ **Integrate** the complex array of technology platforms, data dictionaries, etc.
- ▶ **Rapidly deploy** new technology
- ▶ **Access, configure, and share** information easily
- ▶ **Display** multi-source data in common framework
- ▶ **Closed loop** decision making across multiple control domains

# Technology Providers Roles



## ▶ **APS Vendors**

provide solutions that enable people to make **optimized decisions**

## ▶ **ERP Vendors**

provide software that is best suited for **executing and tracking transactions**

## ▶ **Database Vendors**

provide solutions for **database management**

## ▶ **Hardware Vendors**

provide solutions for **infrastructure**

# **Optimal Decision Support Requires World Class Solutions**



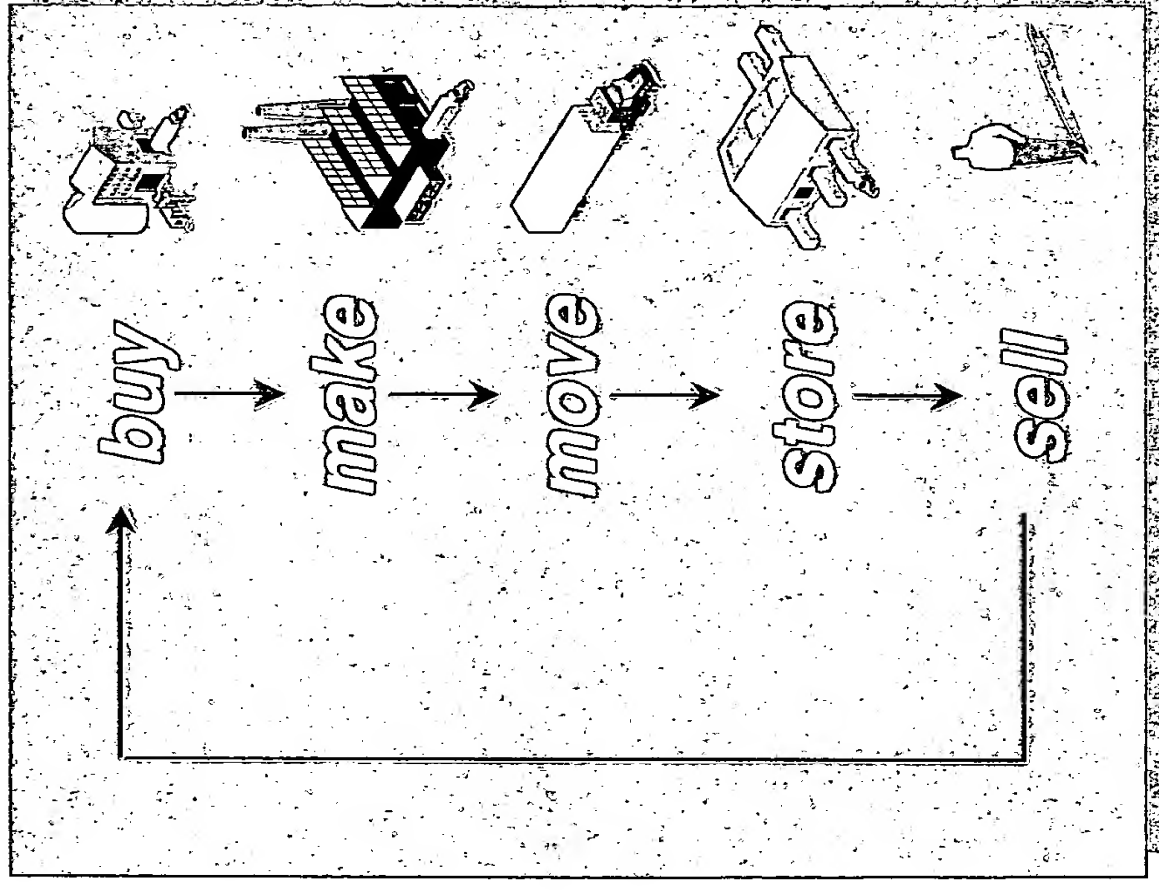
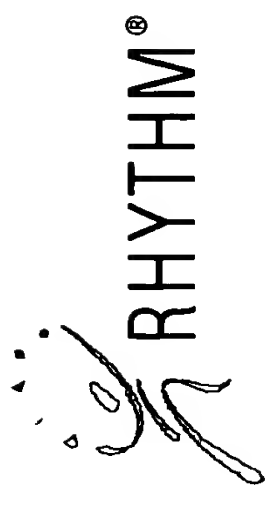
► **World Class Applications**

► **World Class Architecture**

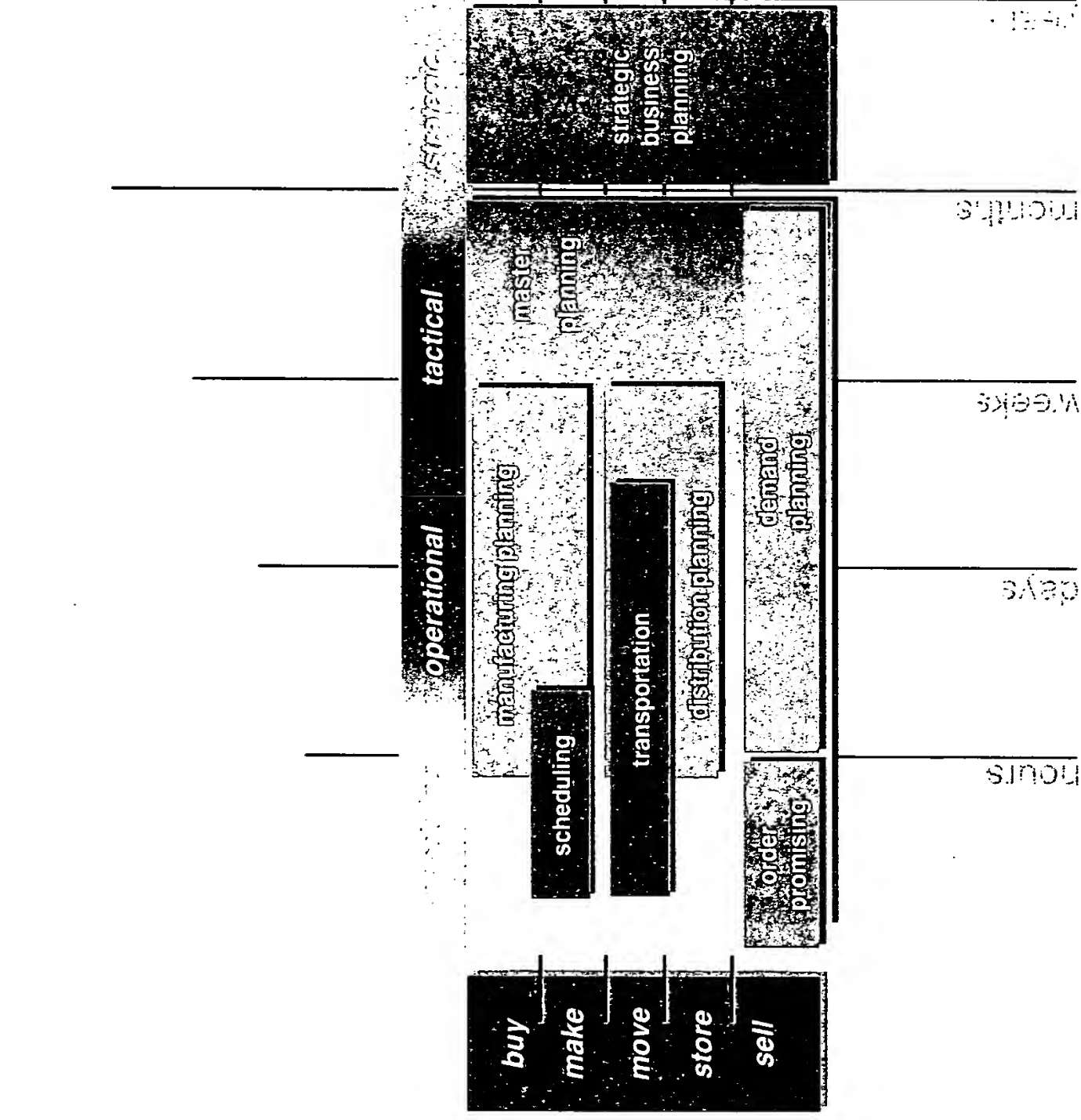
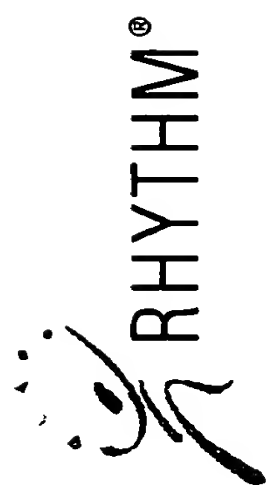
► **World Class Partners**



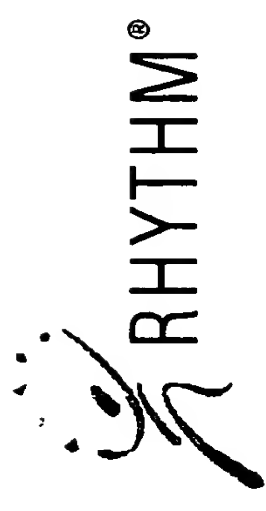
# Example: Global Supply Chain Planning Enables Optimal Decisions for Business to:



# Solution Overview

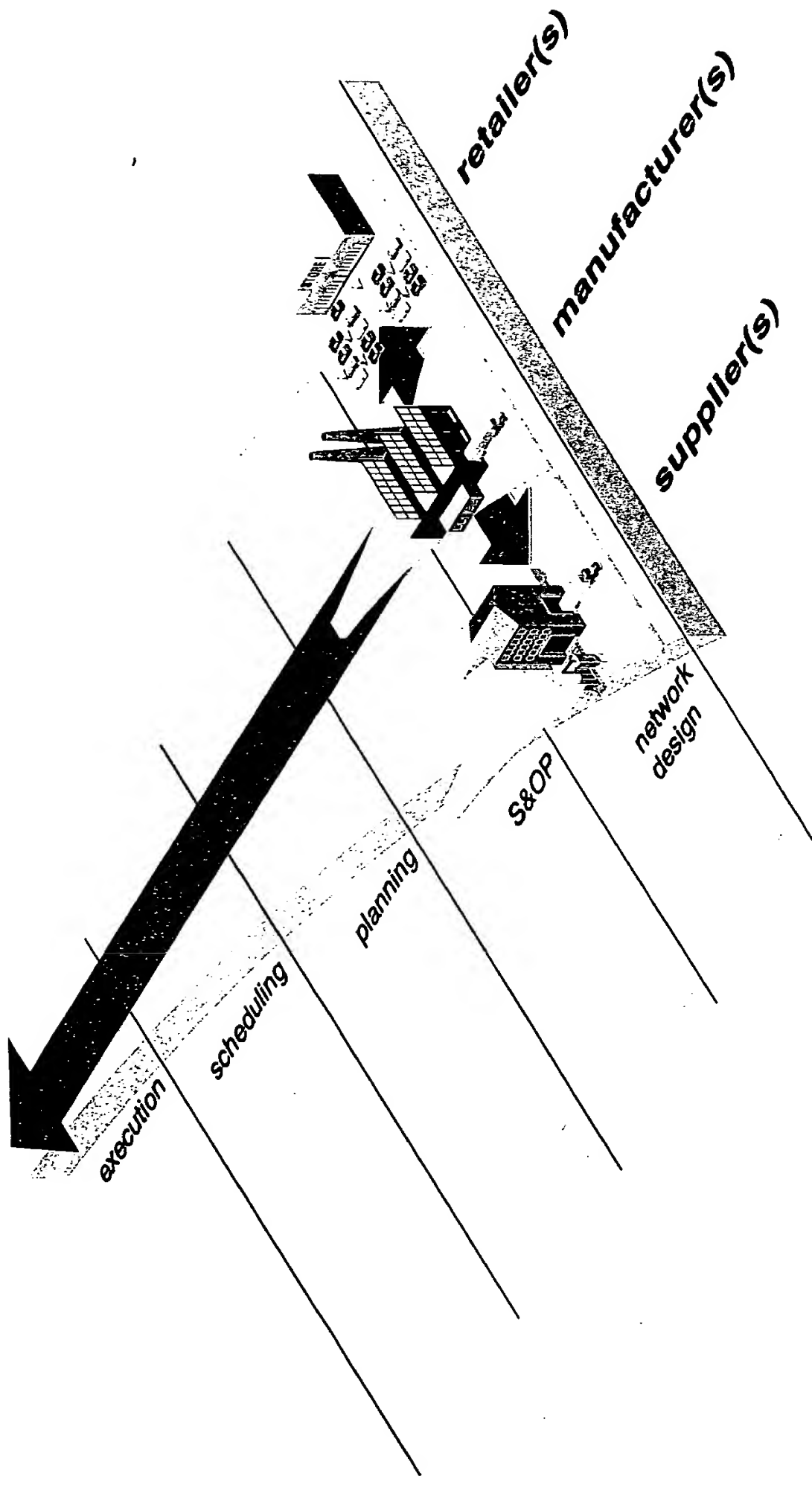


# Planning Funnel: Key Business Solutions

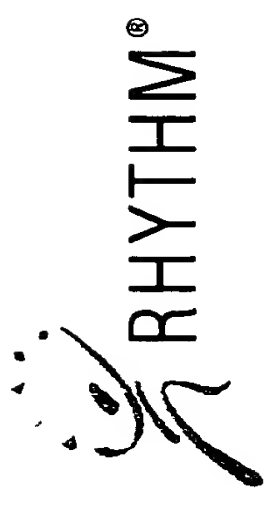


Supply Chain Segment	Key Business Solutions
• Strategic Planning	<ul style="list-style-type: none"><li>• Product Portfolio</li><li>• Supply Network Structure</li><li>• Acquisitions/Divestitures</li></ul>
• Tactical Planning	<ul style="list-style-type: none"><li>• Demand Creation</li><li>• Demand/Supply Optimization</li><li>• Inventory Optimization</li></ul>
• Operational Planning	<ul style="list-style-type: none"><li>• Promotion Planning</li><li>• Sales &amp; Operations Planning</li><li>• Resource Optimization</li></ul>
• Scheduling	<ul style="list-style-type: none"><li>• Demand Fulfillment</li><li>• Production Sequencing</li></ul>

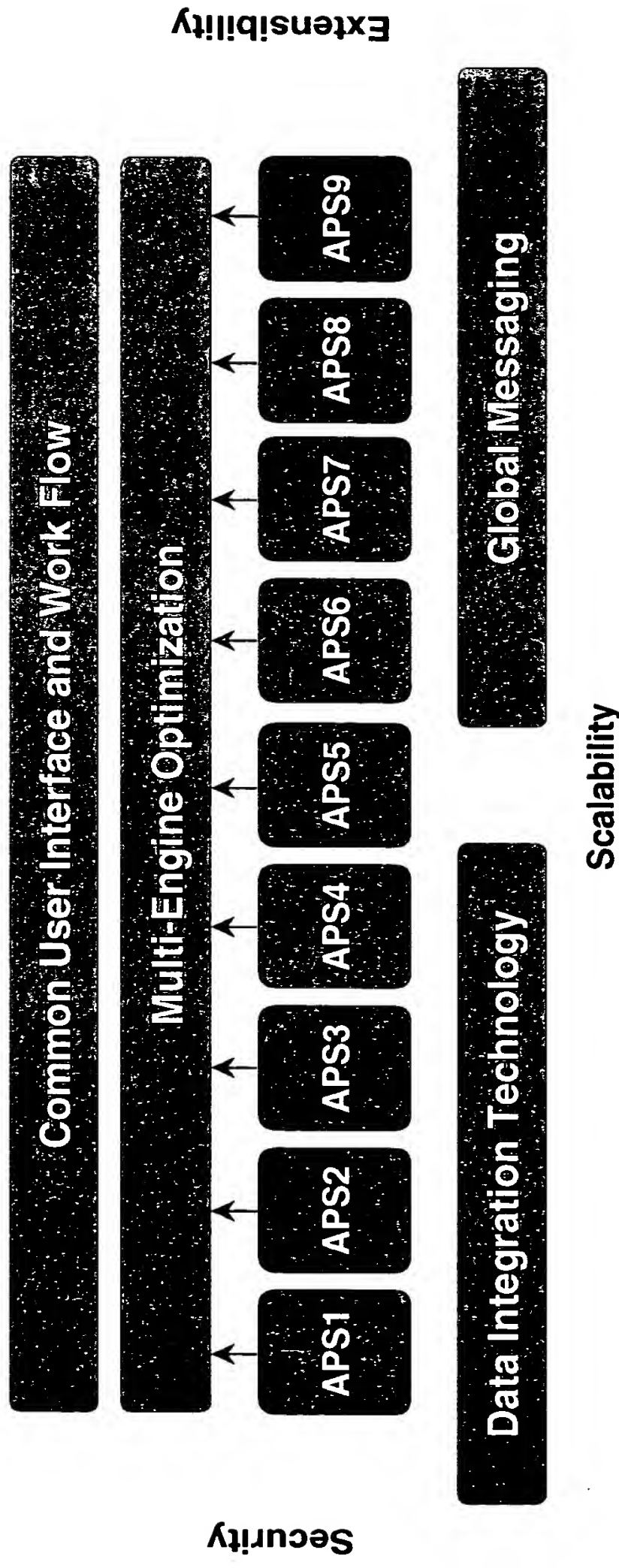
# Multi-Enterprise Planning



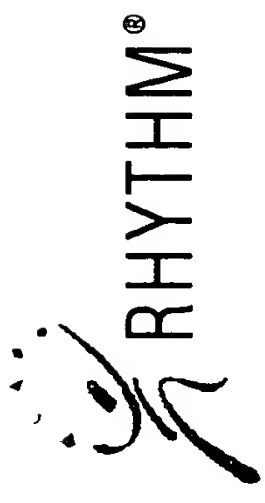
# World Class Decision Support Solution Characteristics



Standard Based

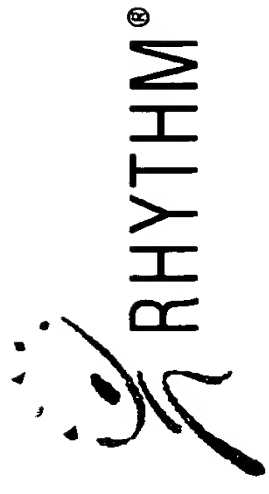


# World Class Decision Support Solution Characteristics

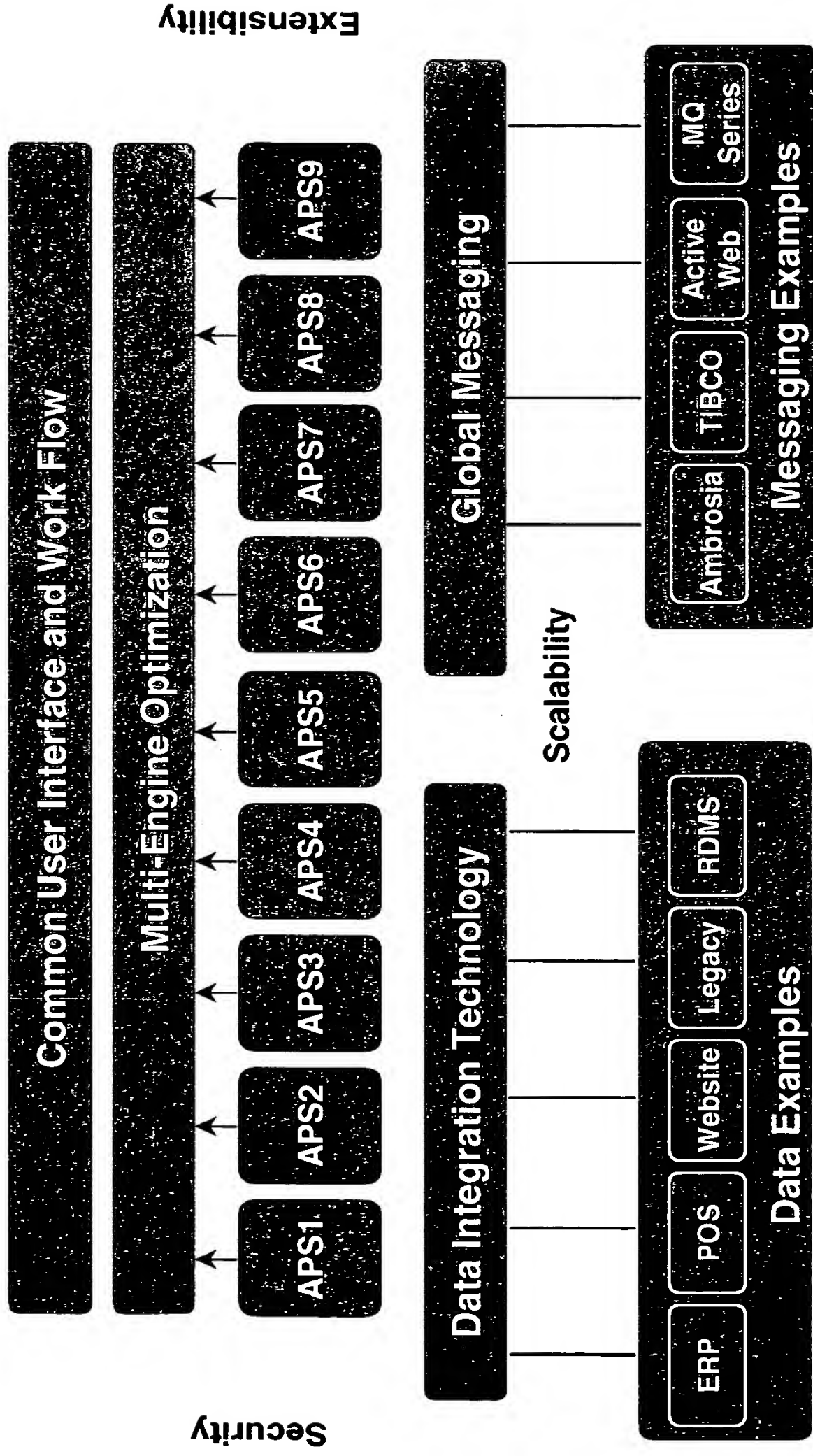


- ▶ **Optimization:** Single and Multiple APS engines
- ▶ **Data Integration:** Multiple sources and definitions
- ▶ **Global Messaging:** Closed Loop Dialogue
- ▶ **GUI:** Single UI Infrastructure and Integrated Workflow
- ▶ **Commonalties**
  - Standards Based: Non Proprietary
  - Secure: No unauthorized access
  - Extensible: Users can augment capabilities
  - Scaleable: Number of simultaneous users and solutions

# World Class Decision Support Solution



Standard Based

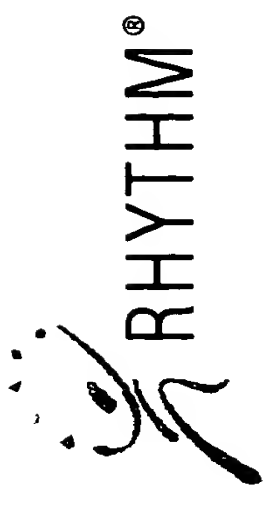




# **i2 Announces Rhythm Decision Support Architecture**

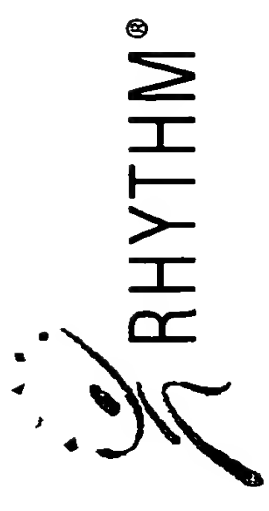


# Rhythm Decision Support Solution Characteristics



- ▶ **Rhythm Optimization:** Single and Multiple APS engines; including non i2 engines
- ▶ **RhythmLink:** Multiple information sources and data definitions; bi-directional and simultaneous information flow
- ▶ **RhythmLink:** Many to Many Closed Loop Dialogue and Collaboration

# Rhythm Decision Support Solution Characteristics

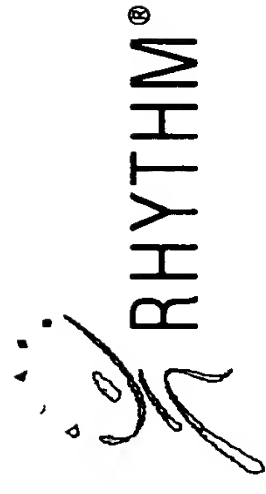


► **RhythmVision:** Multi source Common UI Infrastructure and Wizards based multi-engine Integrated Workflow

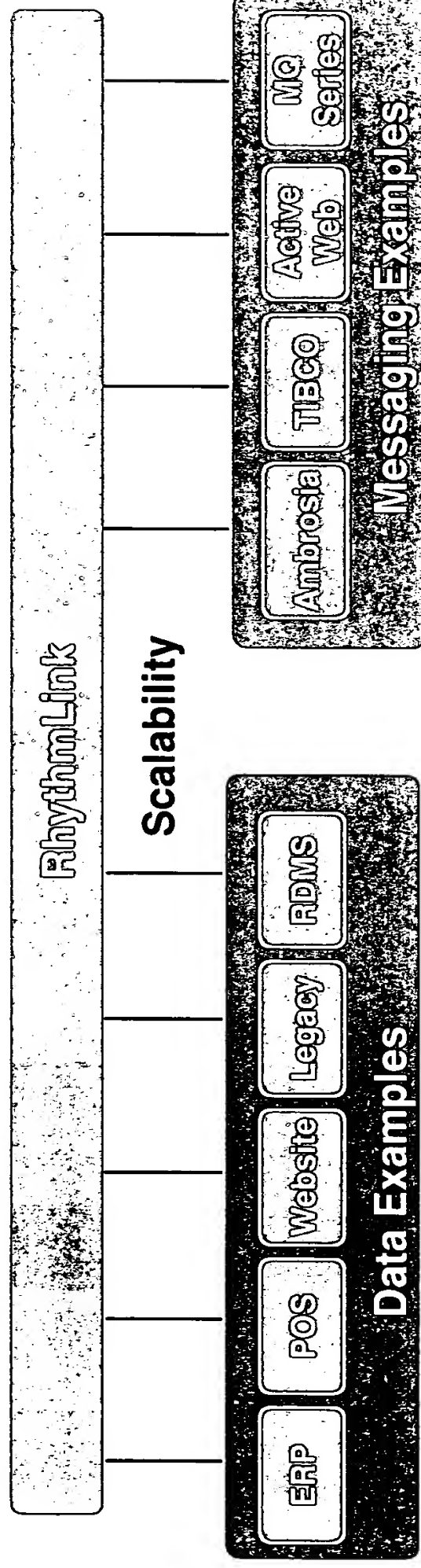
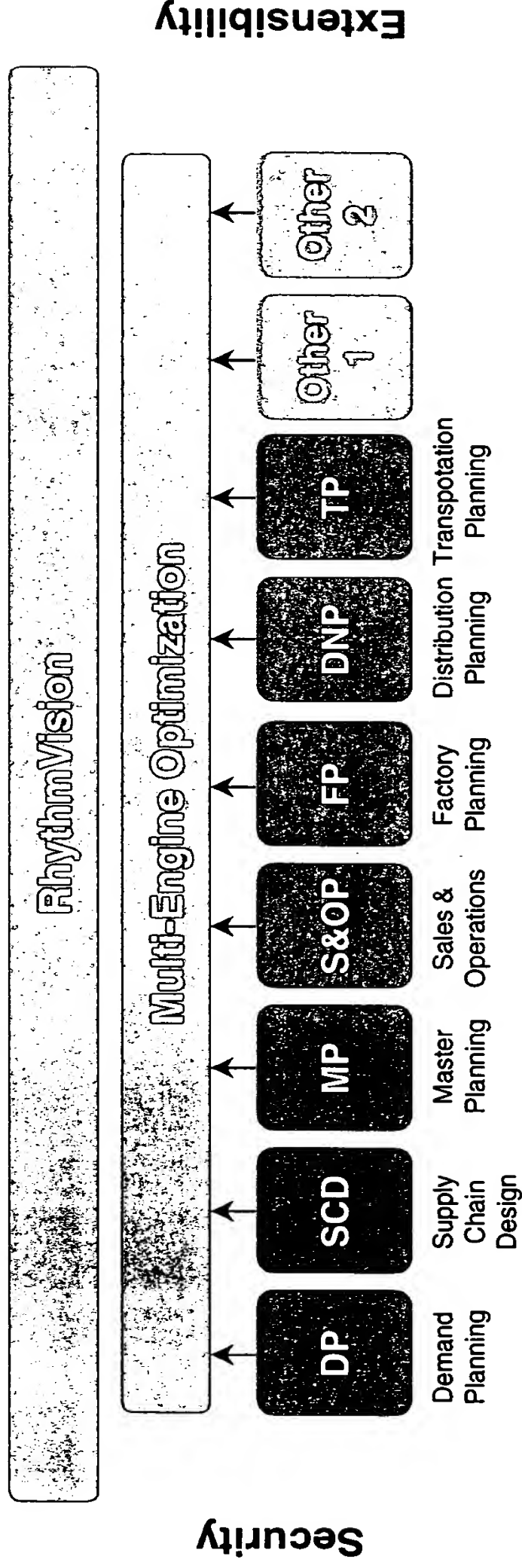
► **Rhythm Commonalties**

- Standards Based: Java, CORBA, DCOM
- Secure: Client and Server level, down to individual objects
- Extensible: Users can augment capabilities; modular
- Scalable: Number of simultaneous users and solutions; multi threaded

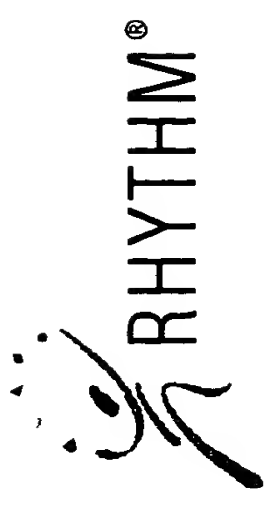
# RHYTHM Decision Support Architecture



## Standard Based

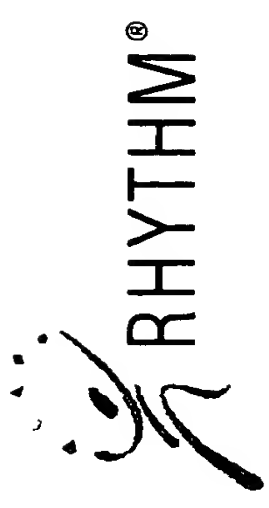


# Solution Characteristics : World Class Applications



- ▶ Comprehensive Problem Representation  
**Example:** Model complex multi enterprise multi stage supply chain
- ▶ Constraint Based Optimization  
**Example:** User defined optimization while respecting real world capacity, materials and supply limitations simultaneously
- ▶ Speed  
**Example:** Due Date Quoting on complex customer phone order
- ▶ Collaboration  
**Example:** Multi Vendor End Isle Promotion Planning

# Business Value



## World Class Application Characteristics

- Comprehensive Problem Representation

- Constraint Based Optimization

- Speed

- Collaboration

## Business Value

- Feasible Solutions
- Complete Solutions

- Optimized for User Defined Objectives
- Key Constraint Leverage

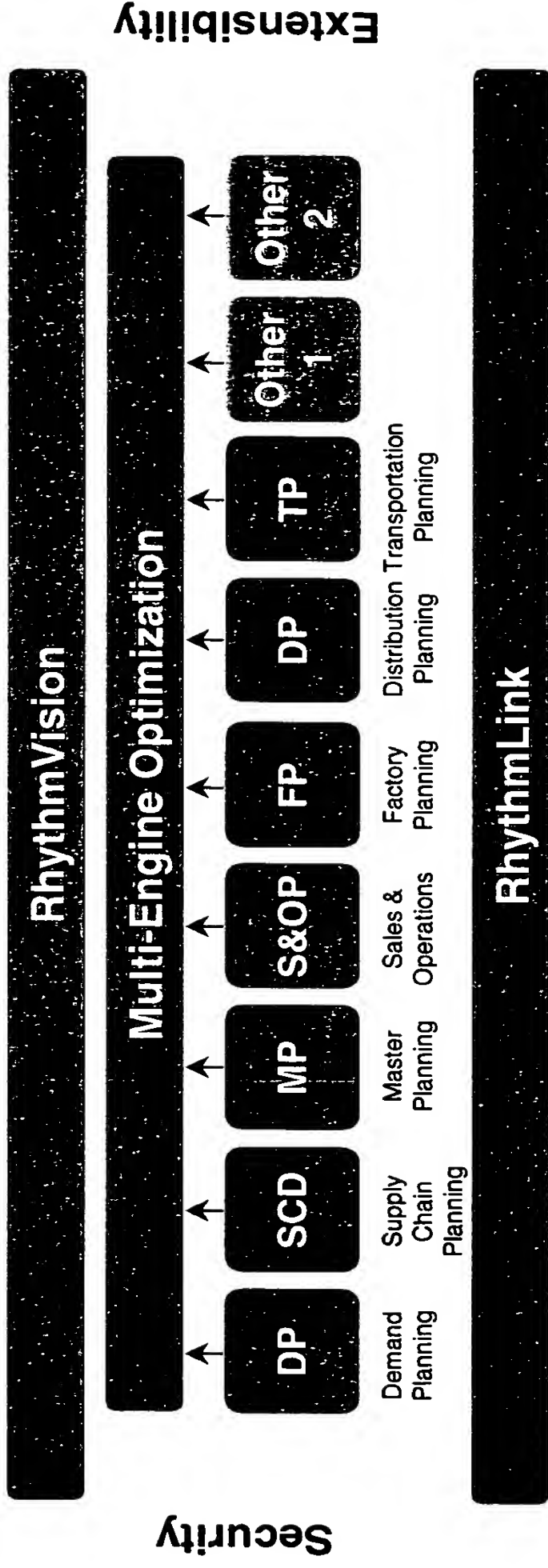
- Commitment Deferred
- Responsiveness and Flexibility

- Customer/Supplier Aligned Decisions
- Forecast Accuracy Improved
- Competitive Positioning Enhanced

# Rhythm Optimization Solution Characteristics



## Standard Based



## Scalability

Comprehensive Problem Representation	Constraint Based Optimization	Speed	Collaboration
<ul style="list-style-type: none"> <li>▸ Single Logical Model</li> <li>▸ Configurable</li> <li>▸ Extensible</li> </ul>	<ul style="list-style-type: none"> <li>▸ Global Across Engines</li> <li>▸ Match Resolvers to Problems</li> </ul>	<ul style="list-style-type: none"> <li>▸ Awareness</li> <li>▸ Resolution</li> </ul>	<ul style="list-style-type: none"> <li>▸ Dynamic Information Exchange</li> <li>▸ Consensus/Resolution</li> </ul>

# Rhythm Optimization Solution Characteristics



- Comprehensive Problem Representation

**Single Logical Model:** Model the complexities and robustness of multi-dimensional problems within a single comprehensive logical framework

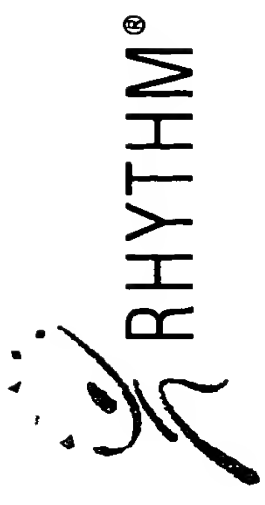
**Example:** SCP model can handle multiple control domains, thereby enabling Multi-Engine Optimization with local control

**Configurable:** Model real business environments in the computer in terms of operations, constraints, policies and objectives

**Example:** Modeling complex buffer inventory and replenishment policies, customized to each site and time variant

**Extensible:** Enable the core logic to be readily extended and enhanced without having to modify unaffected components

# Rhythm Optimization Solution Characteristics



## ► Constraint-Based Optimization

**Globally Across Engines:** Optimize customer service, resources and ROA concurrently across multiple control domains and APS engines

**Example:** Strategy Driven Planning enables SCP to optimize across multiple sites and APS engines

**Match Resolvers to Problems:** Deploy the customized decision logic, from amongst the following examples, that best fits the problem characteristics:

### **Examples:**

Simulated Annealing  
Linear Programming  
Holistic Techniques  
Genetic Algorithms  
Mixed Integers



# Rhythm Optimization Solution Characteristics



## ► Speed

**Awareness:** Proactively identify challenges and opportunities, across the broadest scope, to provide maximum lead time to optimally signal and engage APS decision engines

**Example:** FYI Planner can proactively secure and analyze POS data to identify emerging trends in actual versus planned demand, and trigger a replanning alert

**Resolution:** Provide the optimal solution, from amongst a complex array of alternatives, in real time, to seize the window of opportunity

**Example:** SCP can respond to an ATP demand fulfillment query, based on delivery of end product to a customer ship to location, in seconds

# Rhythm Optimization Solution Characteristics



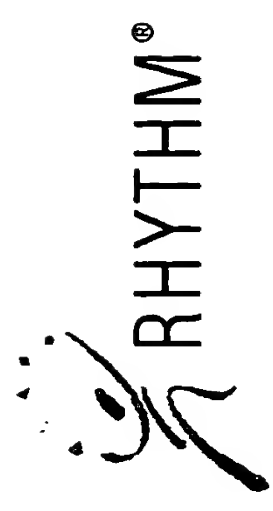
## ► Collaboration

**Dynamic Information Exchange:** Real time access, configuration and incorporation of all relevant types of information, including data, business objects, etc.

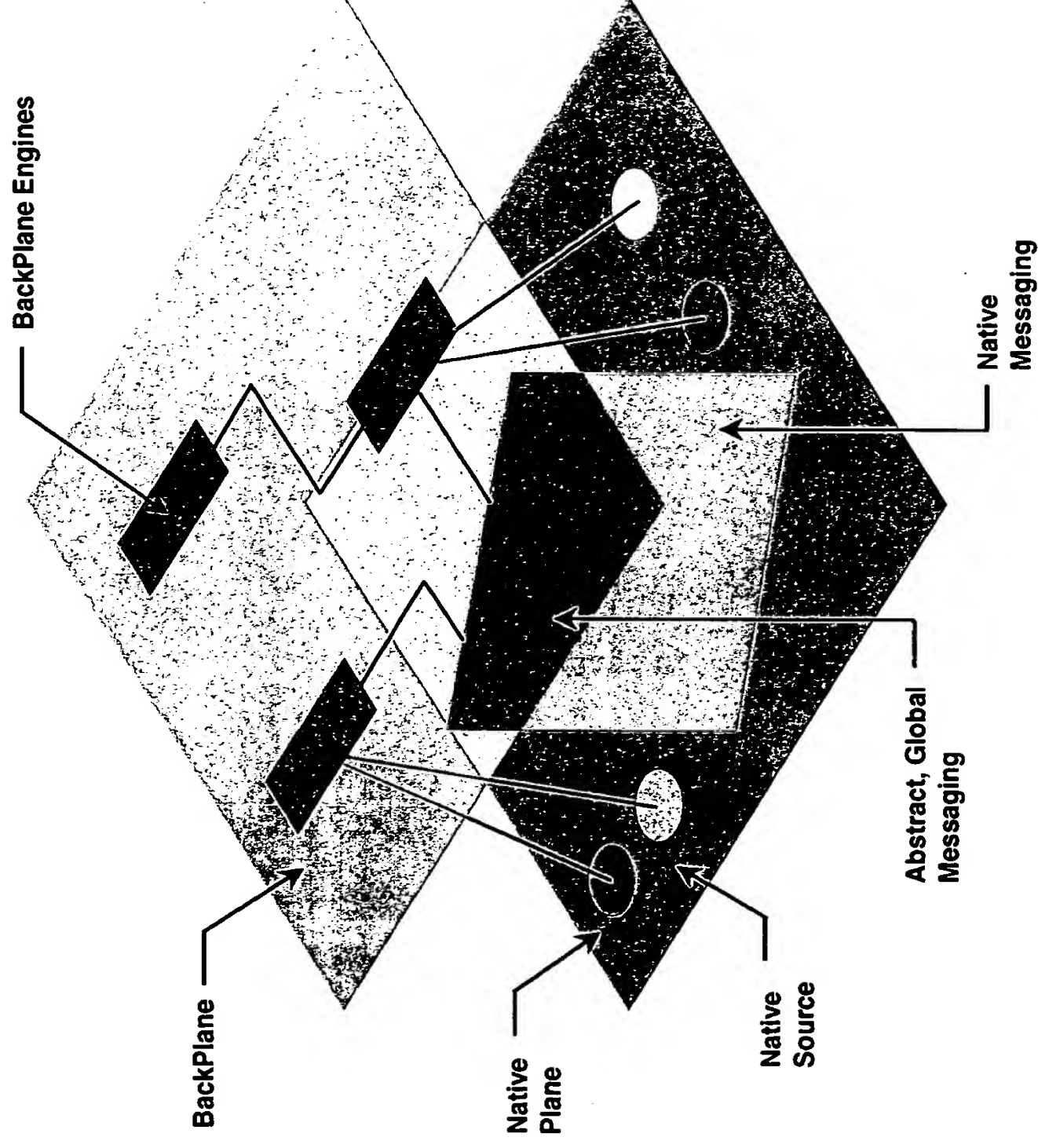
**Example:** RhythmLink enables exchange of distributed objects among multiple APS engines

**Consensus/Resolution:** Drive to agreement on common information, across multiple control domains, from differing positions

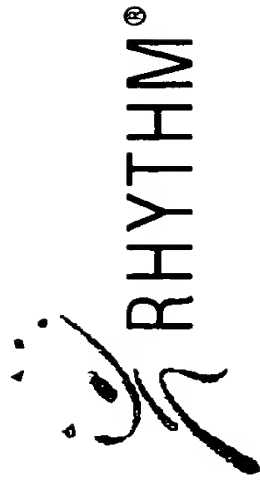
**Example:** SCP Request/Promise/Commit enables multi-engine multi-enterprise collaboration on product/item requirements



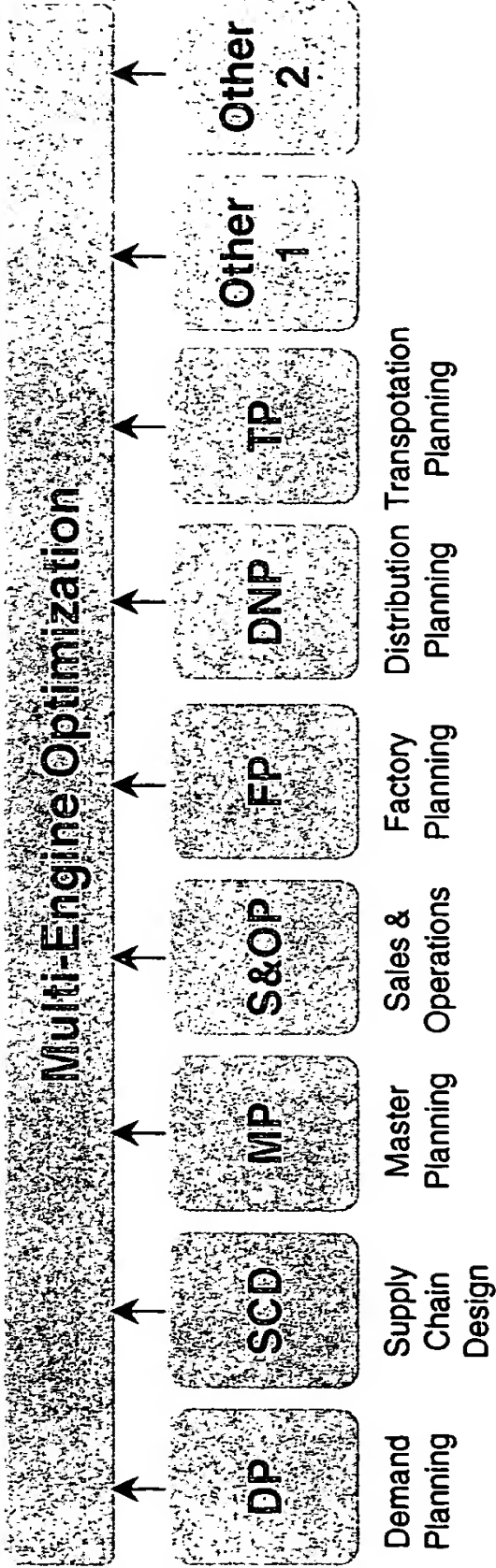
# Universal BackPlane Adapter



# RhythmVision Solution Characteristics



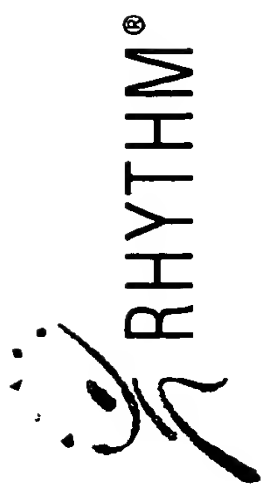
Standard Based



Configurable	Integrated Workflow	Navigation	Common UI	Multi-Engine Workflow	Load Balancing
--------------	---------------------	------------	-----------	-----------------------	----------------

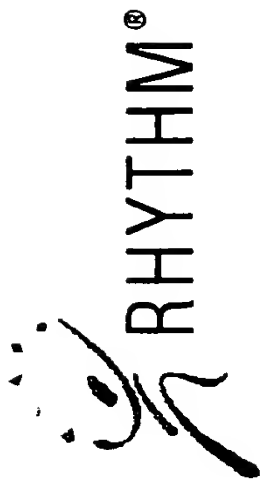
# RhythmVision Solution

## Characteristics

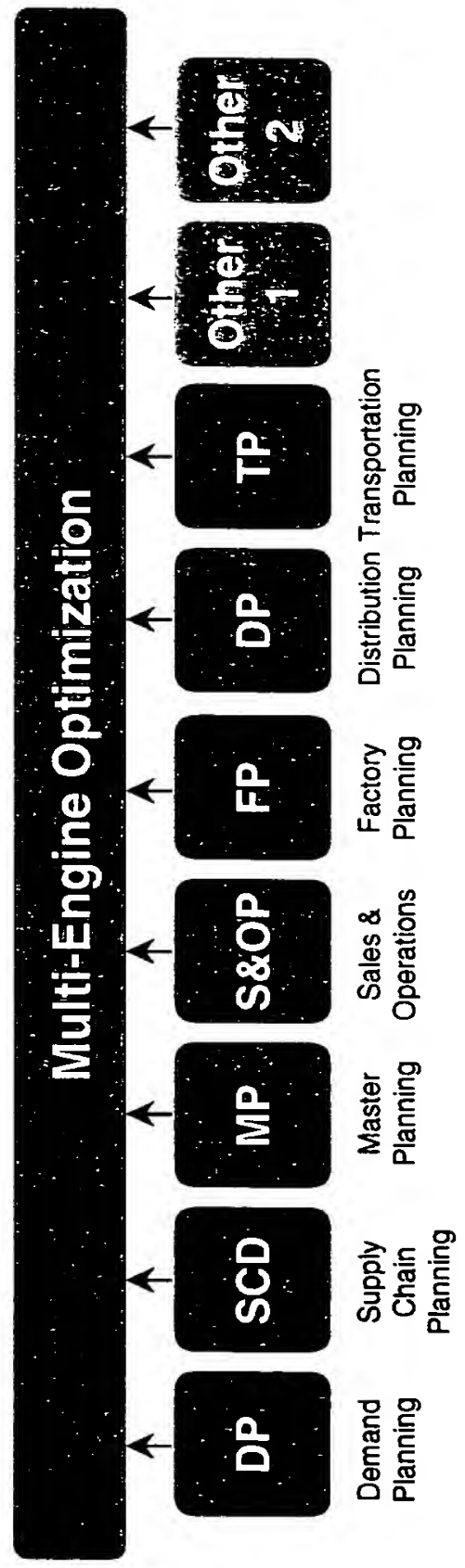


- ▶ **Configurable:** Wizard enabled User configurability
- ▶ **Integrated Workflow:** Solution driven best business practices integral component of application
- ▶ **Navigation:** Multiple highly graphical navigation methods, including supply chain modal view, Workflow Wizards, etc.
- ▶ **Common UI:** Launch all Rhythm solutions from common interface, display multi-source data on single screen
- ▶ **Multi-Engine Workflow:** Enables complex Wizard facilitated workflows involving multiple engines solutions
- ▶ **Load Balancing:** Enables optimal response times and network resource utilization in multi-engine solutions

# Rhythm Optimization Solution Characteristics

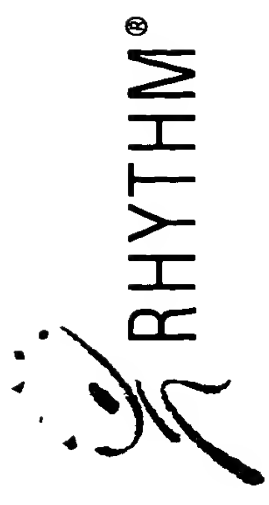


Standard Based



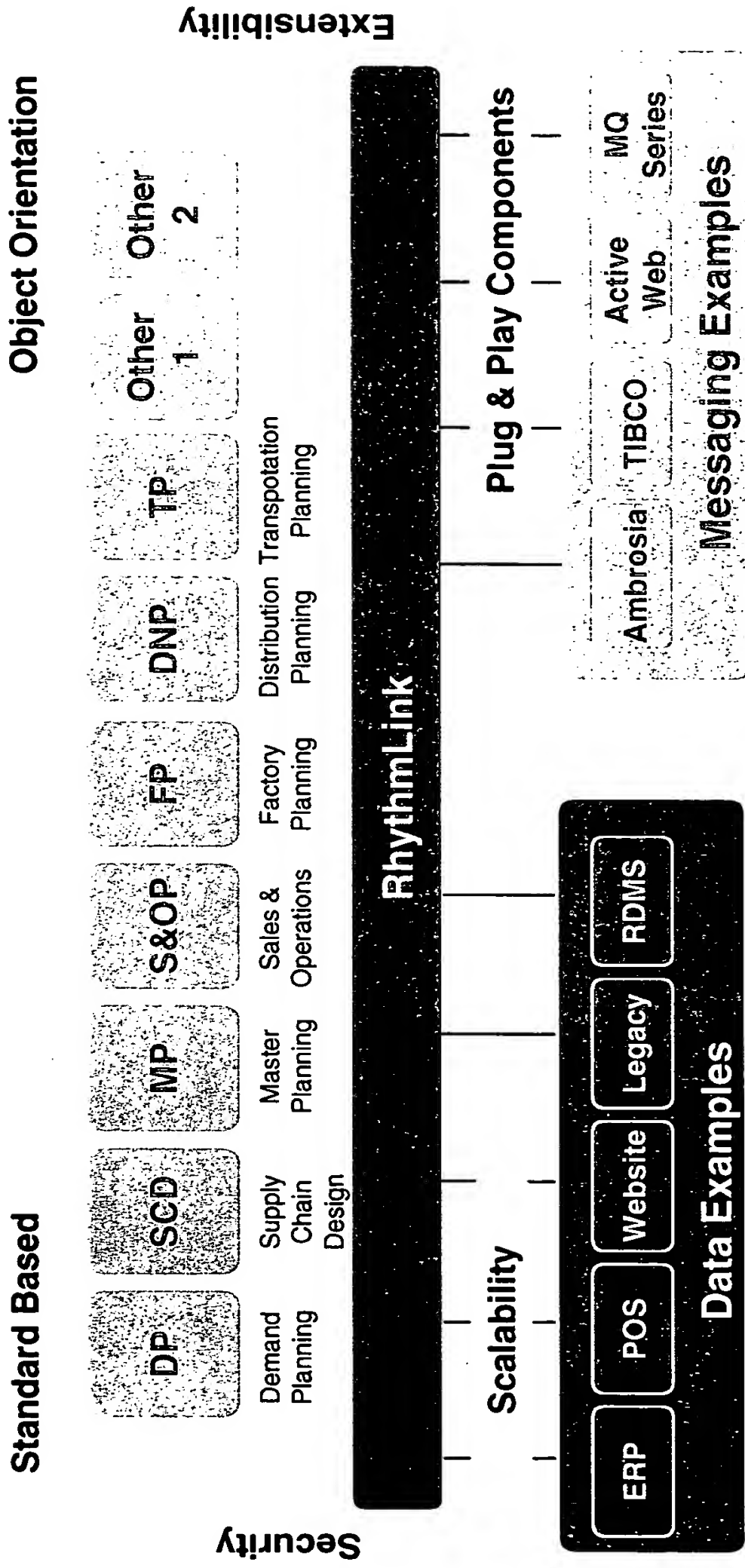
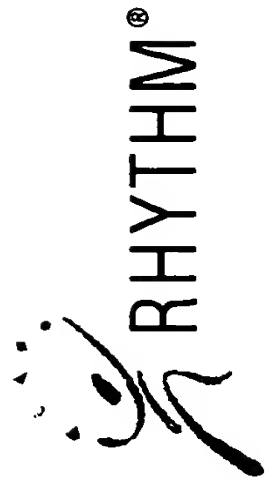
Memory Residence	Model Configuration	Bi-Directional Propagation	Distributed Algorithms	Intelligent Agents	Common Object Model
---------------------	------------------------	-------------------------------	---------------------------	-----------------------	---------------------------

# Rhythm Optimization Solution Characteristics



- ▶ **Memory Residence:** Results in extremely fast response times
- ▶ **Model Configuration:** Enables complex representations of solutions and multiple layered solution strategies
- ▶ **Bi-Directional Propagation:** Feasibly resolves entire problem upstream/downstream of constraints
- ▶ **Distributed Algorithms:** Enables optimization incorporating multiple APS engines and/or multiple platforms
- ▶ **Intelligent Agents:** Event triggered complex business logic shared among multiple APS engines
- ▶ **Common Object Model:** Shared business logic enables multi-engine solutions

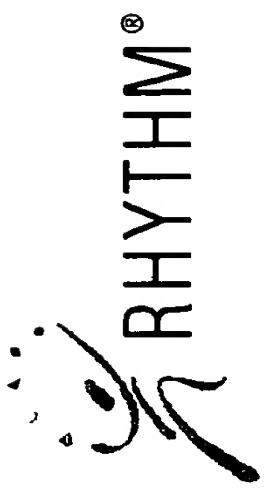
# RhythmLink Data Integration Solution Characteristics



Multi-Source Information      Data Configuration      Data Permanence      Multi-Sourcing Synchronization      Common Data Model



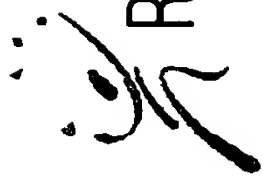
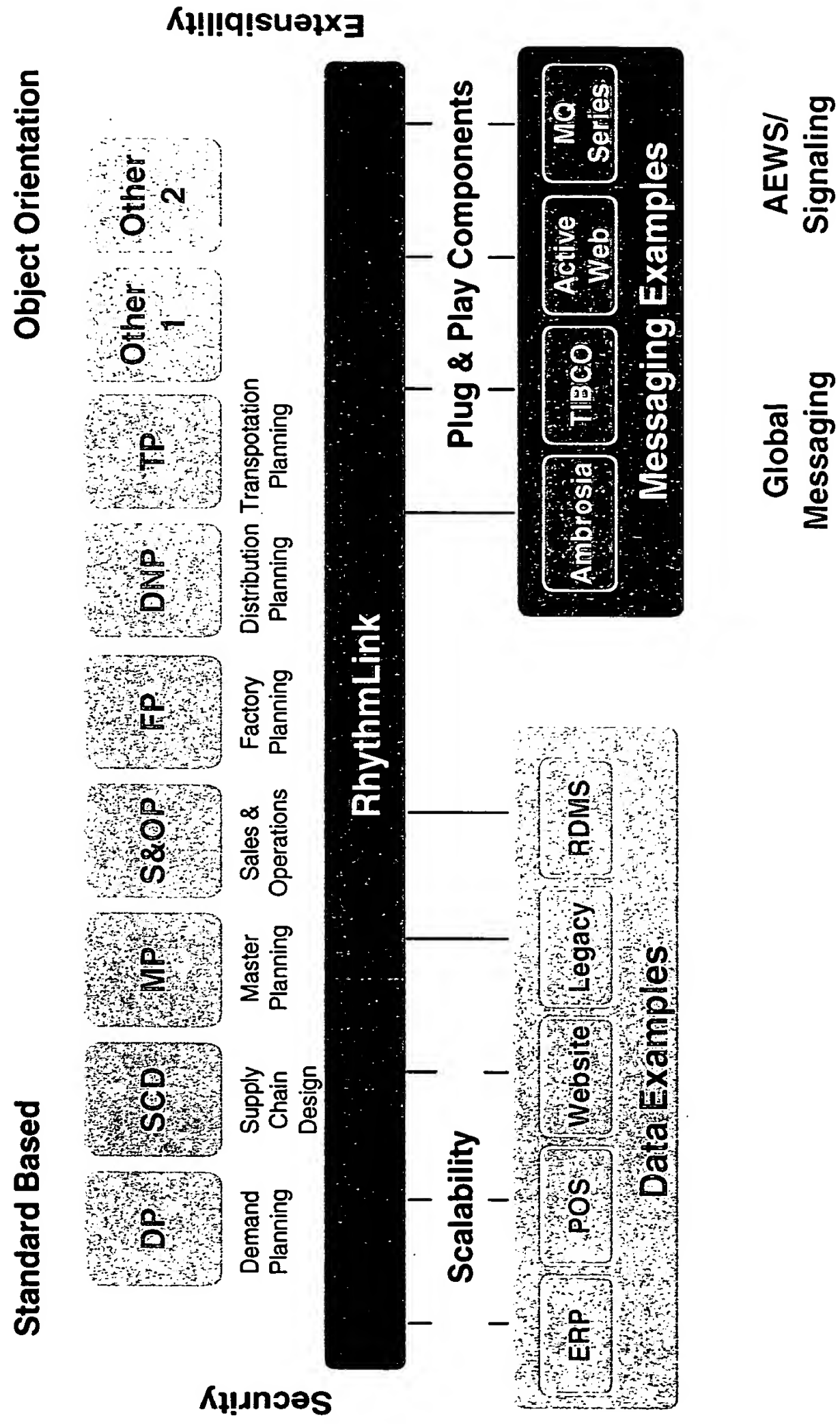
# RhythmLink Data Integration Solution Characteristics



- ▶ **Multi-Source Data:** Access data from multiple information sources simultaneously including ERP, POS, Legacy, etc.
- ▶ **Data Configuration:** Adapt data with different definitions of Product, Location, Time, etc to a common framework
- ▶ **Data Permanence:** Ensures data consistency and retention
- ▶ **Multi-Sourcing Synchronization:** Ensures time integrity and consistency of data sourced from multiple locations
- ▶ **Common Data Model:** Enables complex analysis of information from multiple sources based on translation to common definition

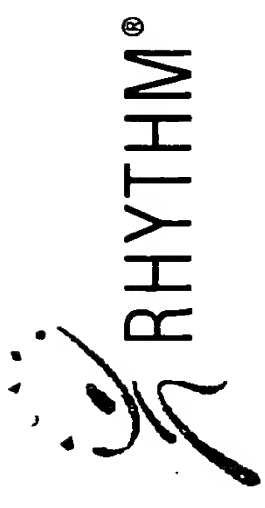
# RhythmLink Global Message Bus

## Solution Characteristics

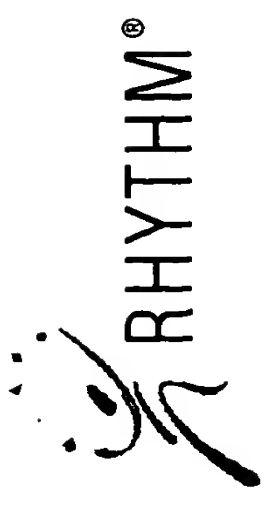
Global Messaging      AEWS/  
Signaling

# RhythmLink Global Message Bus Solution Characteristics



- ▶ **Global Messaging:** Supports complex one-to-many closed loop collaboration and object focused dialog
- ▶ **AEWS/Signaling:** Enables proactive multi-engine Advanced Early Warning System with integrated workflow to engage APS engines

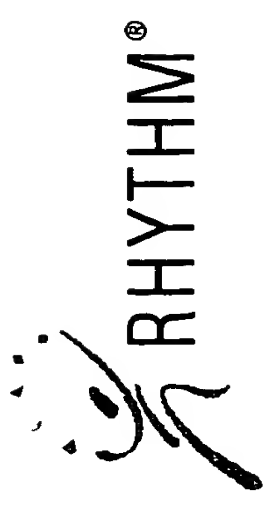
# Multi-Enterprise Solution Example: Single Face To Customer



Solution Requirement	Business Value
<ul style="list-style-type: none"> <li>Global Demand Fulfillment via Global Sourcing</li> <li>Demand Prioritization based on Product, Customer, Location, etc.</li> <li>Multi Product, Multi Ship To, Multi Ship When</li> <li>Combinations of Make To Stock, Make To Order, Configure To Order, etc.</li> <li>Substitution Alternatives for Product, Ship To and Ship When</li> <li>Demand Commit, Order Tracking, Order Status</li> <li>Advanced Early Warning System</li> </ul>	<ul style="list-style-type: none"> <li>Prioritized Customer Service</li> <li>Improved Customer Fill Rates</li> <li>Improved Responsiveness</li> <li>Reduced Order Cycle Time</li> <li>Reduced Inventories</li> <li>Increased Customer Market Share and Revenues</li> <li>Increased Customer Market Share Stability</li> <li>Improved Customer Satisfaction</li> <li>Reduced Sales Costs</li> <li>Improved Asset Utilization</li> </ul>

# Phase I:

## Available Now



### ► Rhythm Optimization Solutions

- Strategic Business Planning
- Master Planning
- Demand Planning
- Manufacturing Planning
- Distribution Planning
- Transportation Planning
- Order Promising
- Scheduling

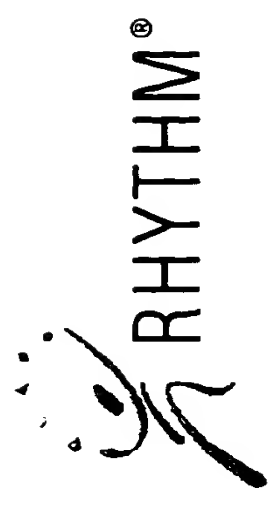
### ► RhythmLink

- Comprehensive multi-directional multi-source data extraction, manipulation and configuration
- Dynamic UI based capability to reconfigure data requirements
- Distributed Objects

### ► RhythmVision

- Common UI architecture supporting multiple UI types across multiple data sources and APS engines
- Wizard based best practices workflow
- Common components, extensibility, security and user model
- Common UI data model, routing and load balancing

# Phase II: Available December 31 '97



## ► RhythmLink

### *Global Messaging:*

Secure, closed loop object focused dialogue, publish and subscribe broadcasting

### *Supply Chain Architect:*

Enables rapid Wizard based common model generation, auto configuration and auto sourcing of multi-engine solutions

### *Business Object Servers:*

Create complex business objects from multiple, diverse data sources vis Business Object Driver Adaptors

### *Fault-Tolerant 24X7 Servers:*

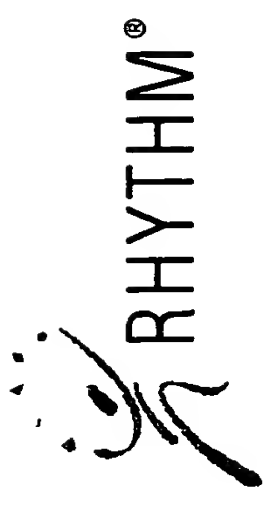
Guaranteed Global ATP uptime

## ► RhythmVision

### *Multi-Enterprise Best Practices Templates:*

User configurable Wizards that provide best practice roadmaps for solving multi-enterprise and multi APS business problems

# Phase III: Available by July 31 '98



## ► Rhythm Optimization Solutions

- Sales & Operations Planning
- Demand Creation
- Global Inventory Manager
- Web Based Co Managed Inventories
- Global Demand Fulfillment
- Web Based ATP and DDQ
- Web Based Collaborative Forecasting and Replenishment

## ► RhythmLink

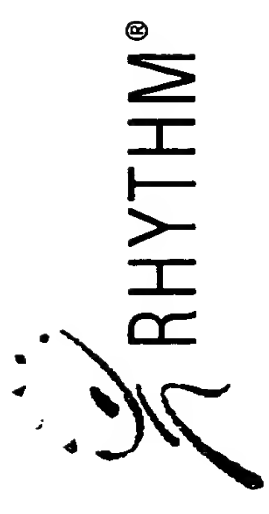
### *Security:*

Comprehensive client and server level security, down to object level

## ► RhythmVision

### *Global Early Warning System:*

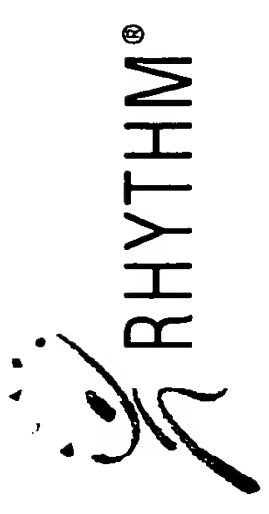
Robust, proactive multi-engine and multi-source prioritized signaling and workflow



# Summary

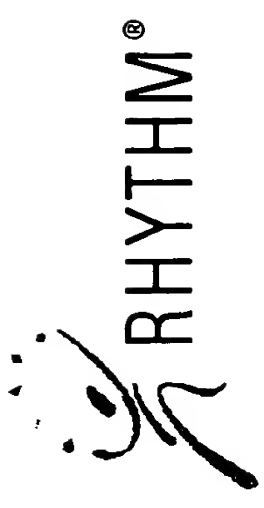
- ▶ Optimized Decision Making Drives ROA
- ▶ Optimized Decision Making requires technology that supports multiple decision engines and diverse information sources
- ▶ i2 provides applications an open architecture that delivers maximum value





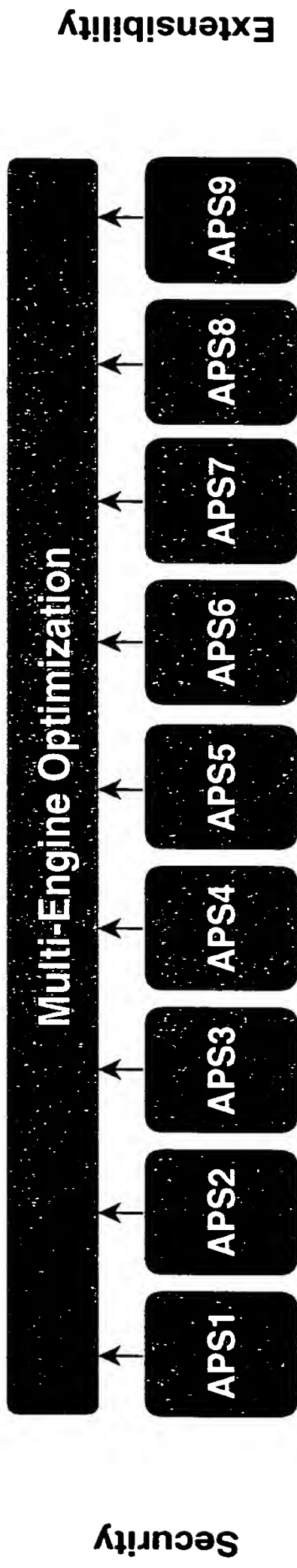
# BACKUP SLIDES

# World Class Decision Support Solution Characteristics



Standard Based

Common User Interface and Work Flow

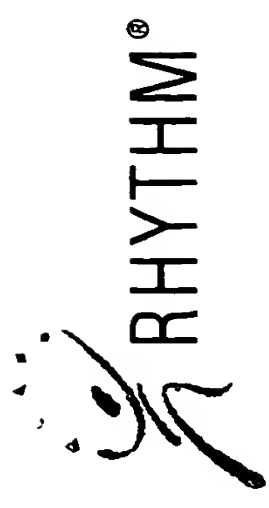


Data Integration Technology

Global Messaging

Scalability

# World Class Decision Support Solution Characteristics



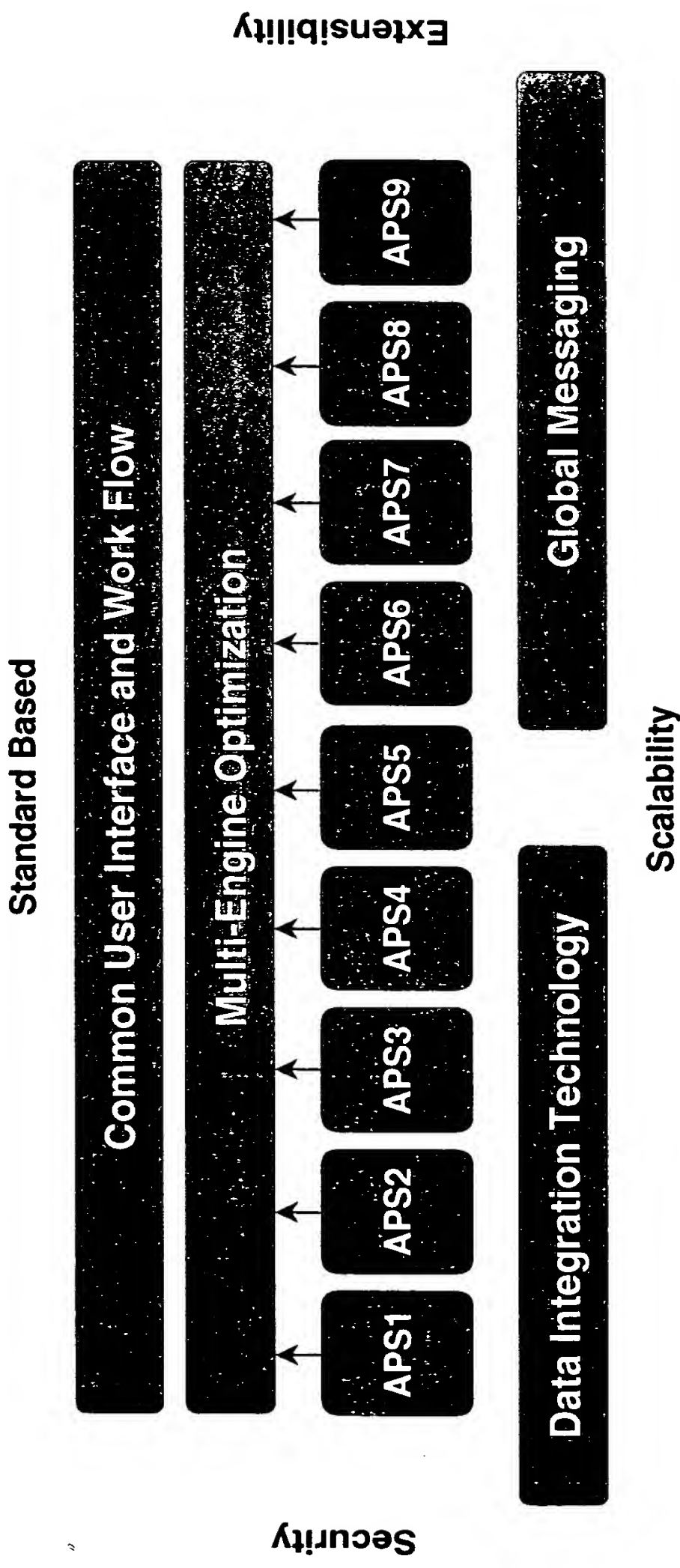
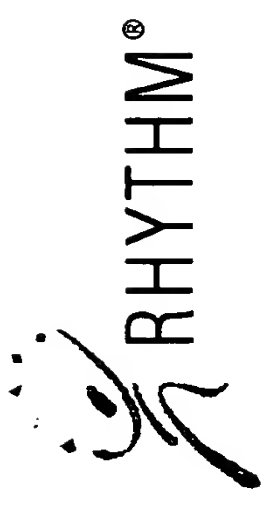
Standard Based

Common User Interface and Work Flow

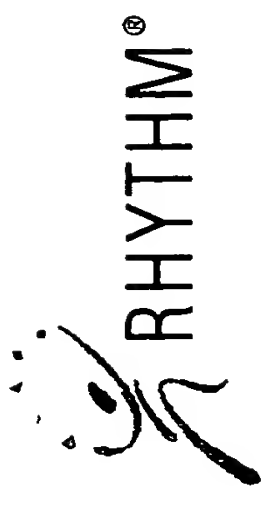


Comprehensive Problem Representation	Constraint Based Optimization	Speed	Collaboration
<ul style="list-style-type: none"> <li>Single Logical Model</li> <li>Configurable</li> <li>Extensible</li> </ul>	<ul style="list-style-type: none"> <li>Global Across Engines</li> <li>Match Resolvers to Problems</li> </ul>	<ul style="list-style-type: none"> <li>Awareness</li> <li>Resolution</li> </ul>	<ul style="list-style-type: none"> <li>Dynamic Information Exchange</li> <li>Consensus/Resolution</li> </ul>

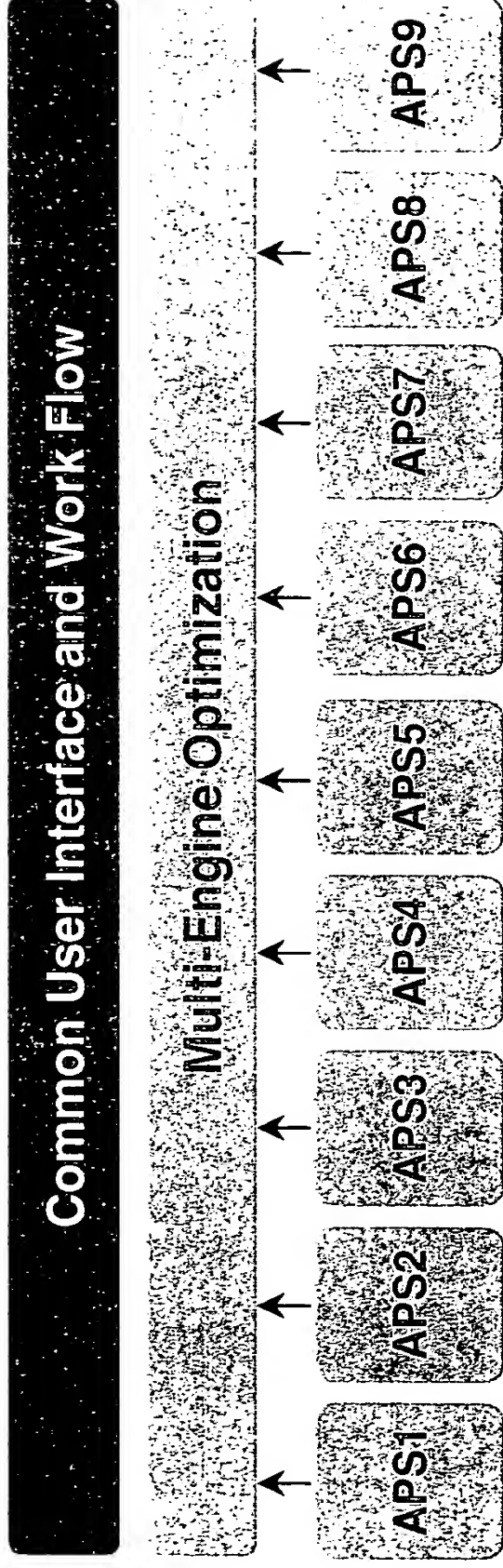
# World Class Decision Support Architecture



# Decision Support Single Engine: Solution Characteristics



Standard Based

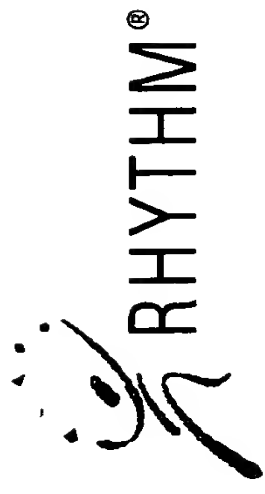


Configurable

Best  
Practices  
Workflow

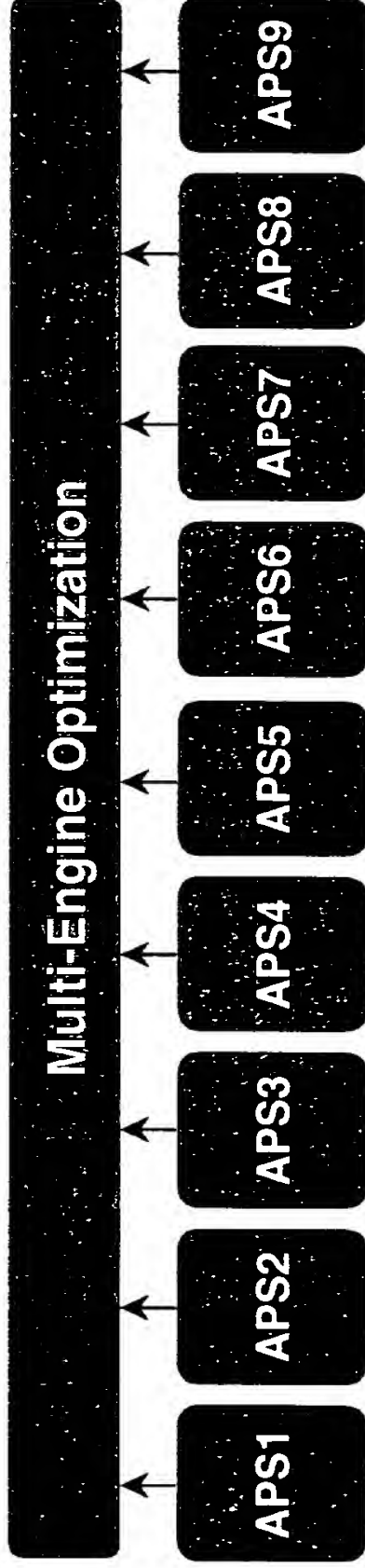
Navigation

# Decision Support Single Engine: Solution Characteristics



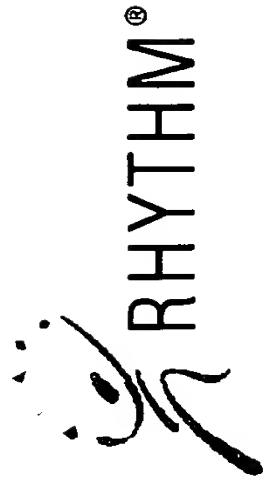
Standard Based

Common User Interface and Work Flow



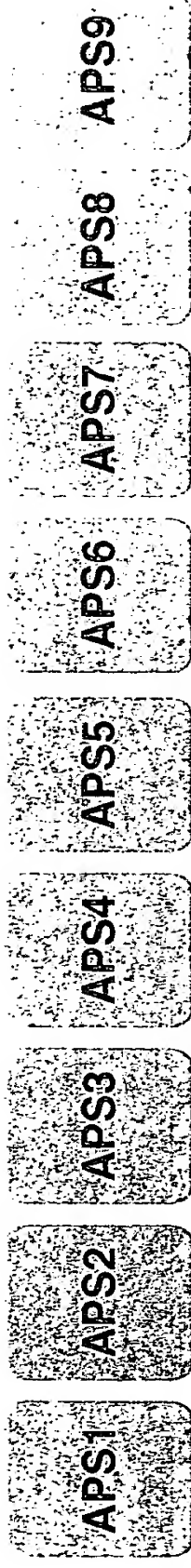
Memory Residence      Model Configuration      Bi-Directional Propagation

# Decision Support Single Engine: Solution Characteristics

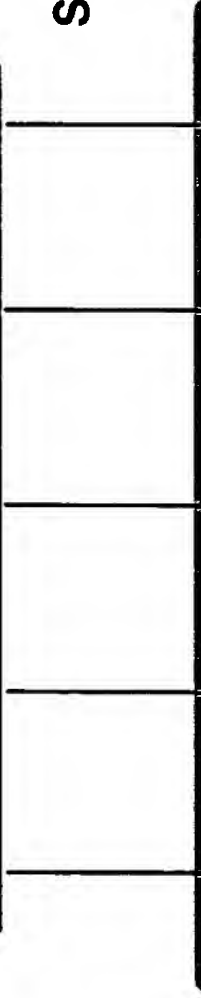


Standard Based

Object Orientation

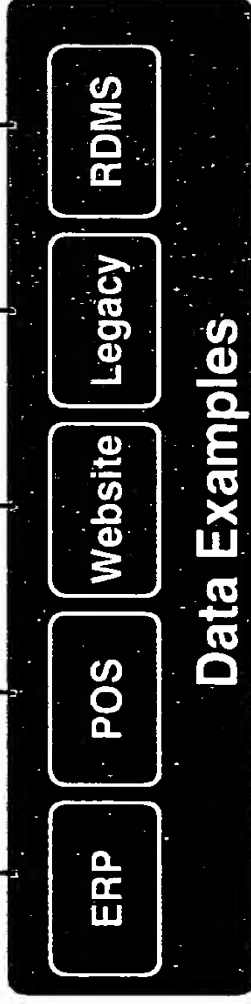


Data Integration Technology



Scalability

Global Messaging

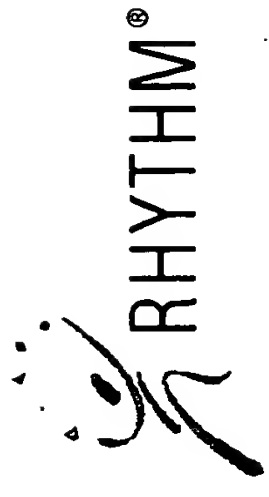


Multi-Source  
Information

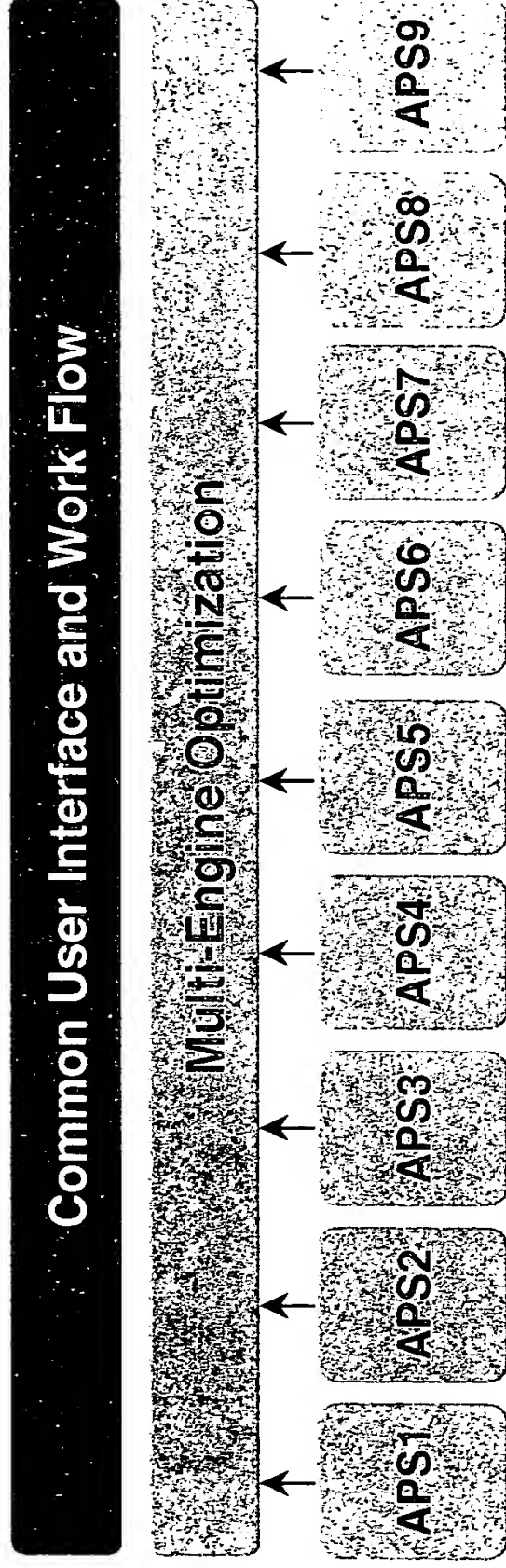
Data  
Configuration

Data  
Permanence

# Decision Support Multi-Engine: Solution Characteristics



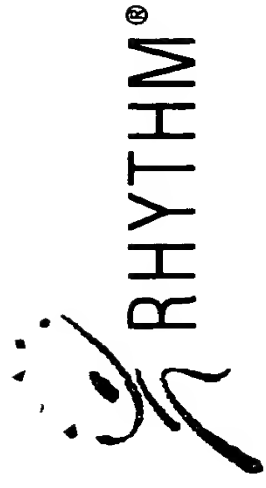
Standard Based



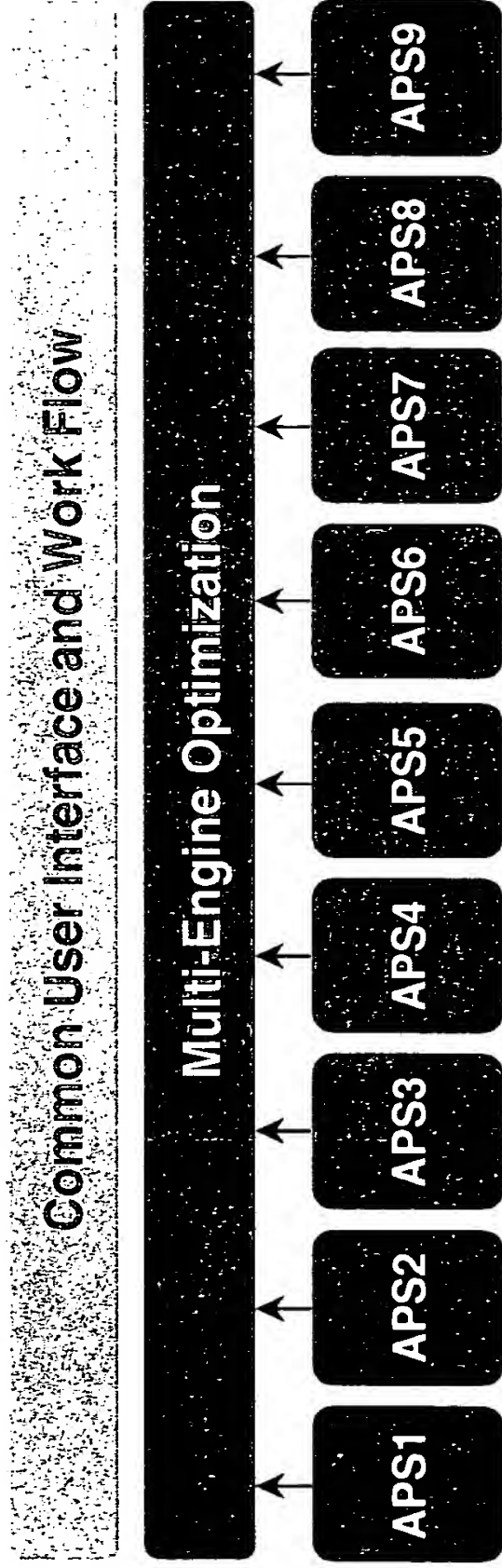
Configurable	Integrated Workflow	Navigation	Common UI	Multi-Engine Workflow	VIB Load Balancing
--------------	---------------------	------------	-----------	-----------------------	--------------------



# Decision Support Multi-Engine: Solution Characteristics

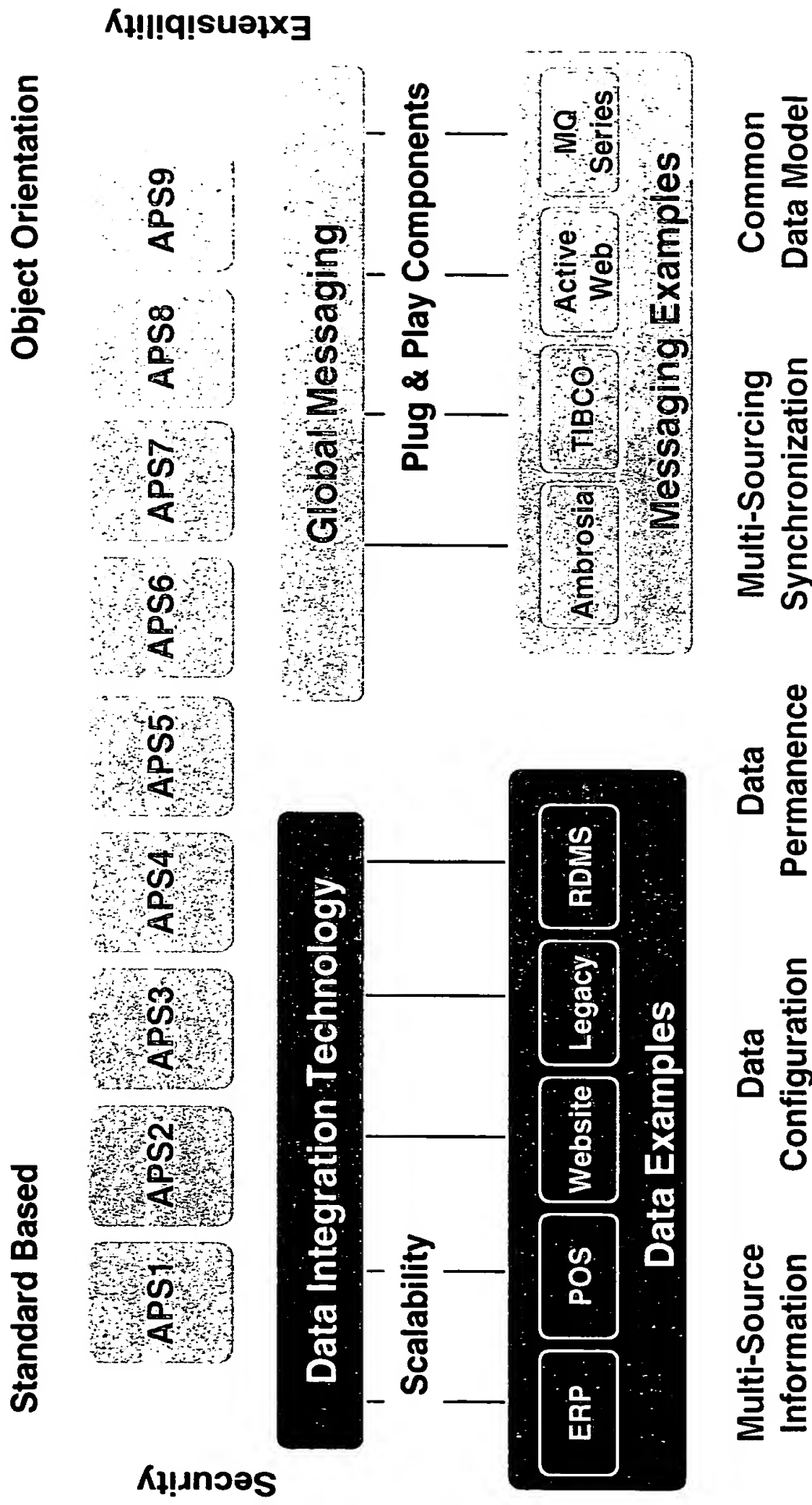
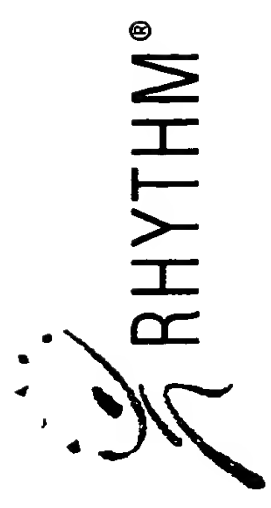


Standard Based

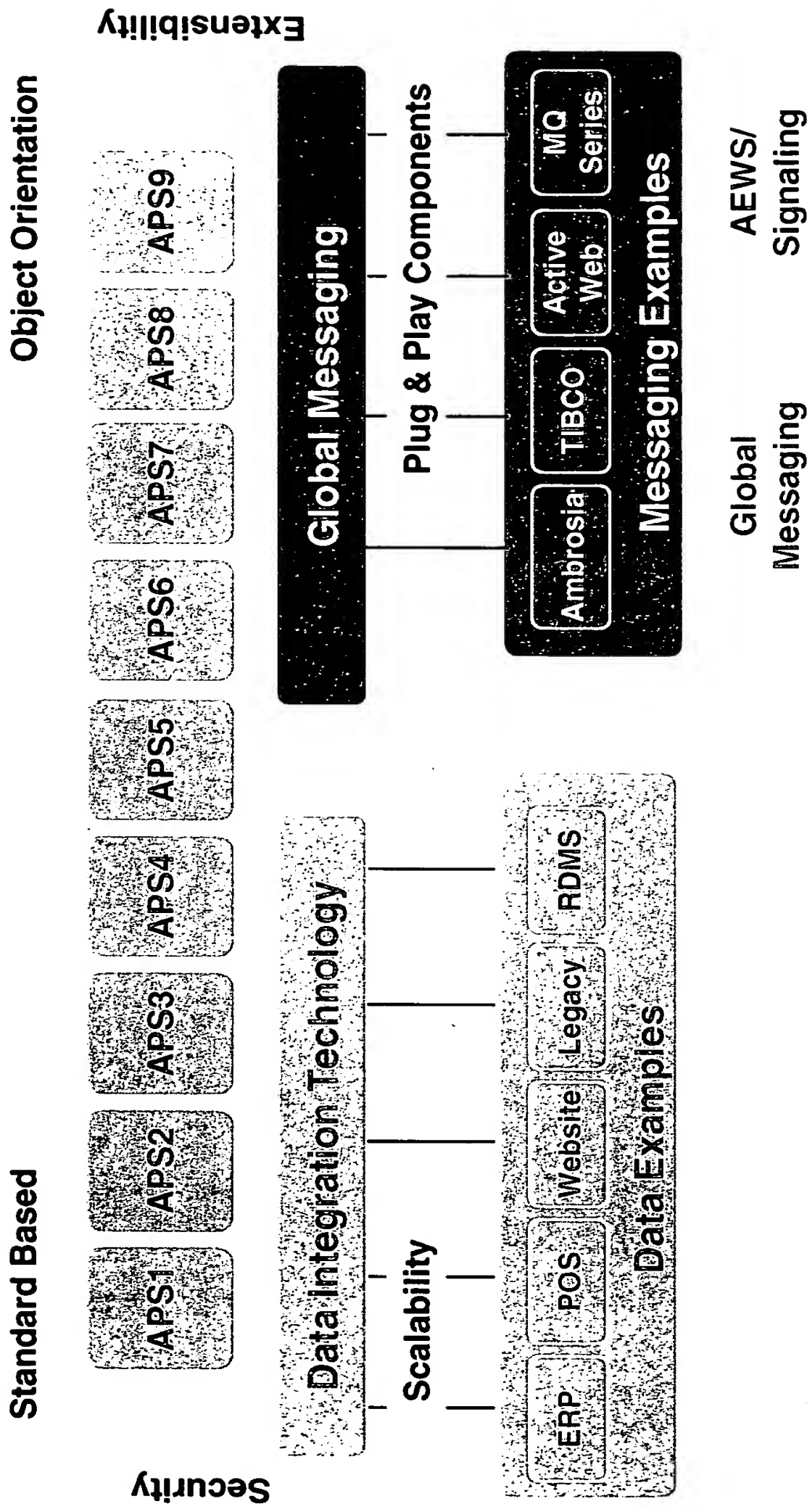


Memory Residence	Model Configuration	Bi-Directional Propagation	Distributed Algorithms	Intelligent Agents	Common Object Model
---------------------	------------------------	-------------------------------	---------------------------	-----------------------	---------------------------

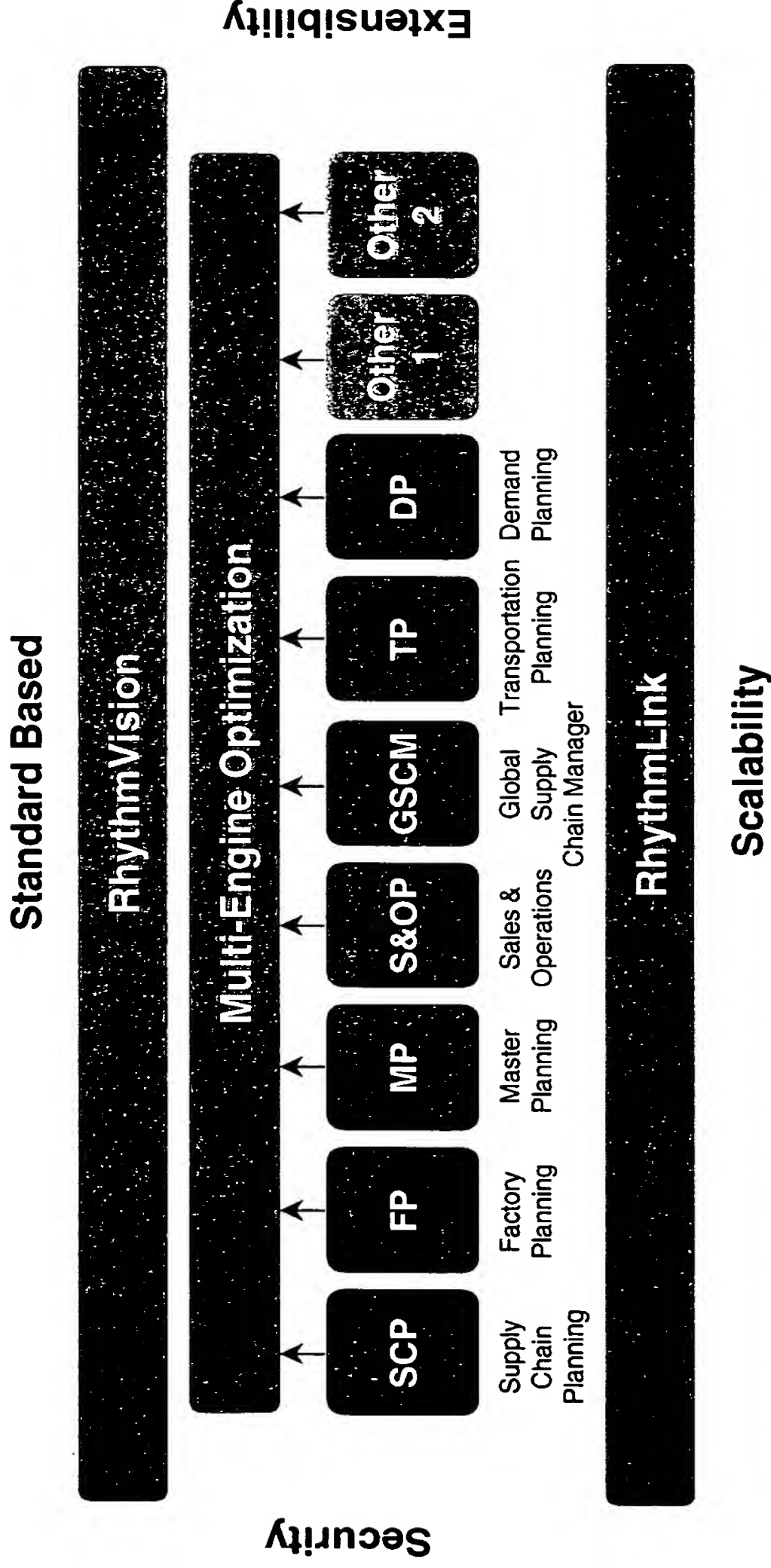
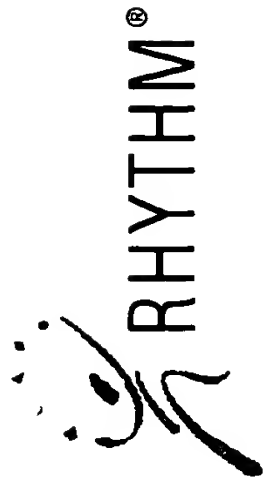
# Decision Support Multi-Engine: Solution Characteristics



# Decision Support Multi-Engine: Solution Characteristics



# Rhythm Decision Support Architecture



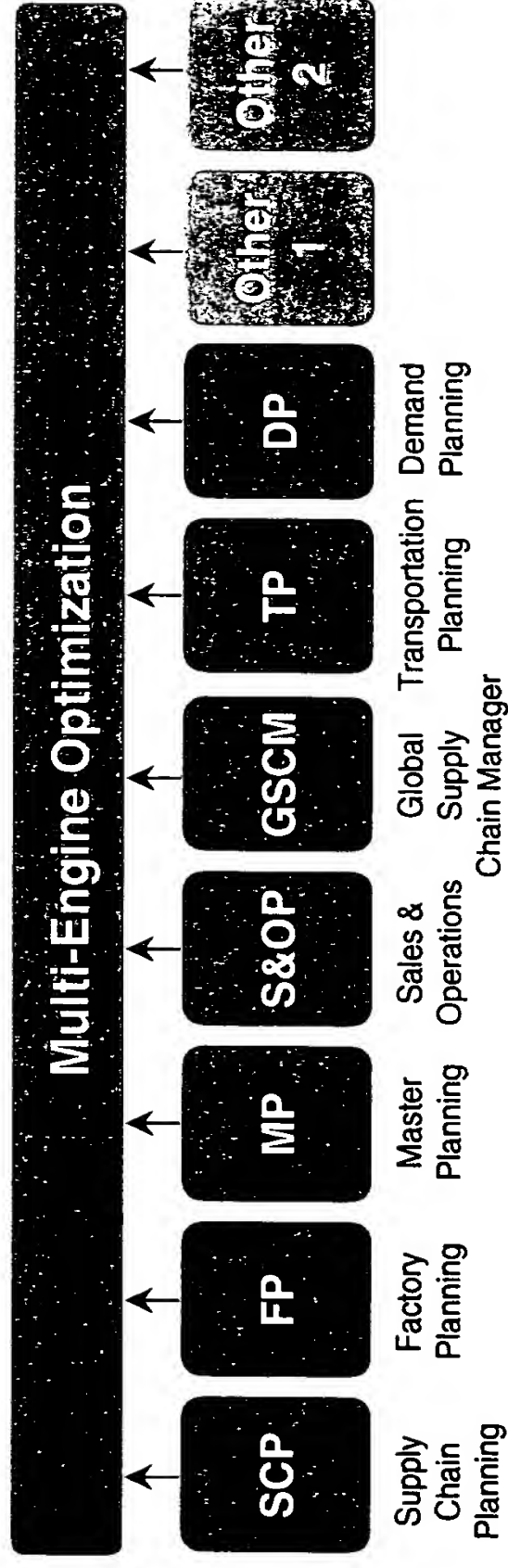
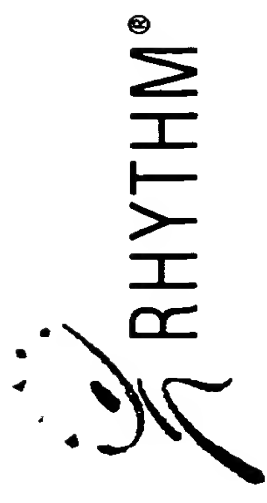
# RhythmVision Solution Characteristics



## RhythmVision

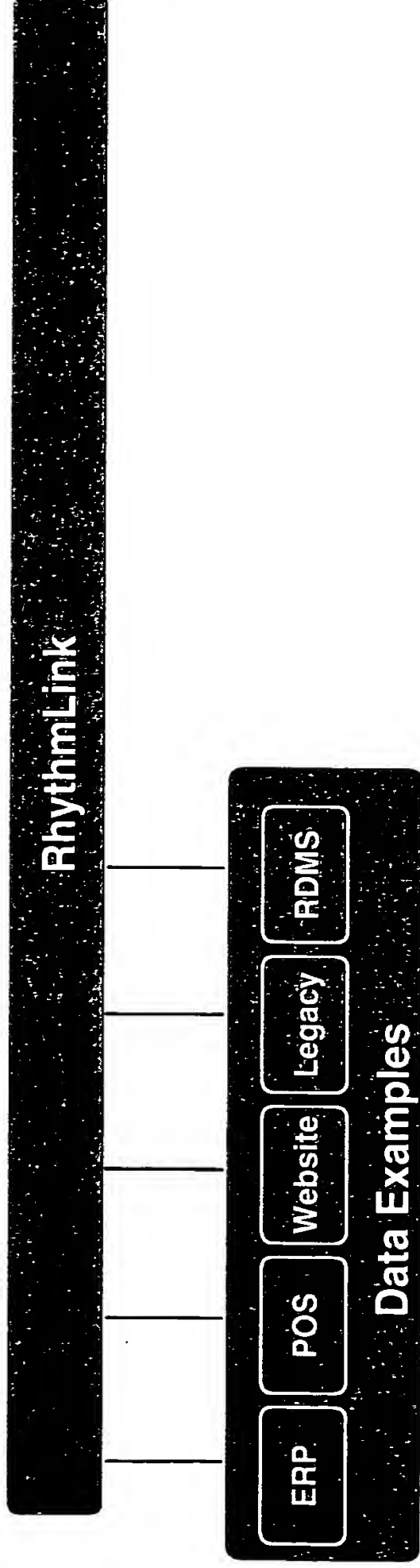
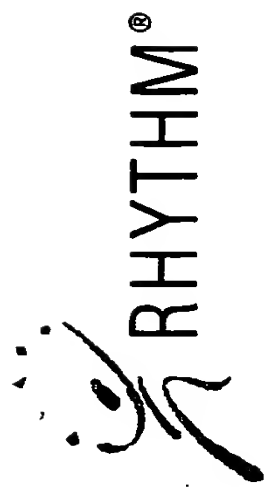
Configurable	Integrated Workflow	Navigation	Common UI	Multi-Engine Workflow	VIB Load Balancing
--------------	---------------------	------------	-----------	-----------------------	--------------------

# Rhythm Optimization Solution Characteristics



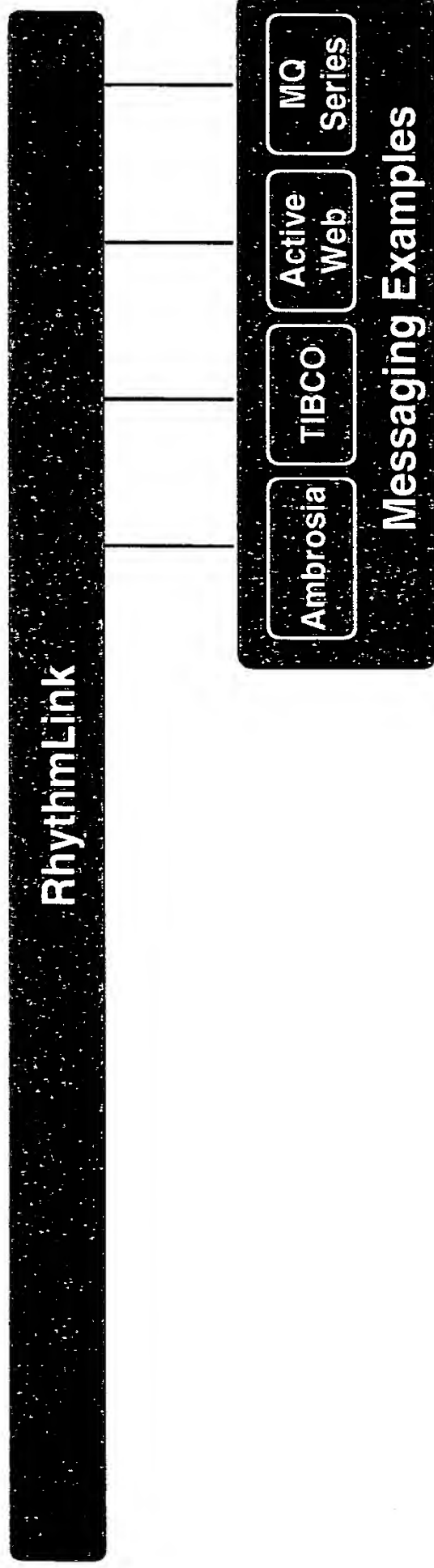
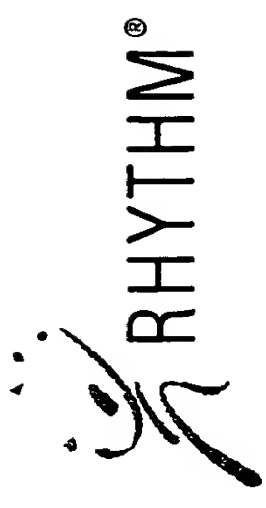
Memory Residence	Model Configuration	Bi-Directional Propagation	Distributed Algorithms	Intelligent Agents	Common Object Model
---------------------	------------------------	-------------------------------	---------------------------	-----------------------	---------------------------

# RhythmLink Data Integration Solution Characteristics



Multi-Source Information	Data Configuration	Data Permanence	Multi-Sourcing Synchronization	Common Data Model
-----------------------------	-----------------------	--------------------	-----------------------------------	----------------------

# RhythmLink Global Message Bus Solution Characteristics

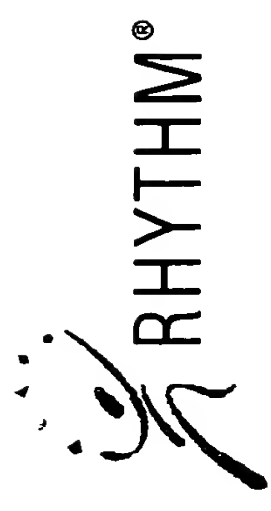


Global  
Messaging

AEWS/  
Signaling



# Alliance Partners



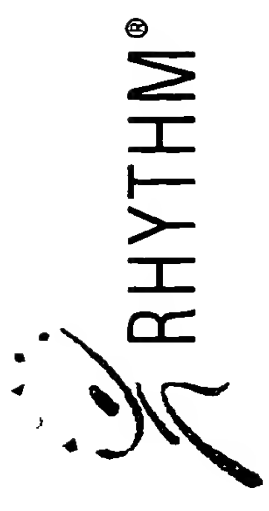
► (Mike Ellis)

# Solutions for World Class Partners



- ▶ Change Management
- ▶ Organizational Redesign
- ▶ Performance Metric Redesign
- ▶ Business Process Re-Engineering
- ▶ Business Process Re-Training
- ▶ Systems Integration

# Solutions for World Class Implementation



- ▶ Speed to ROA
- ▶ Value Pricing
- ▶ Technology Transfer
- ▶ Training
- ▶ Project Management
- ▶ Business Release Methodology
- ▶ Model Configuration
- ▶ Data Definition and Integration